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4 c. 9899

Cardo

*Handwritten cursive script, possibly a signature or decorative flourish, featuring a large initial 'B' and a small 'E' above it.*

*Handwritten cursive script, possibly a signature or decorative flourish, featuring a large initial 'B' and a small 'E' above it.*

1777.

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I through the point *e* is drawn a line *e, h*, parallel to *c, d*, which two lines bound the outward width of an *m*, in which space all the other letters are contained, except the small *s* and *z*. The *o* is only three full strokes, at their proper distances from each other, excepting one hair stroke; and between the extremities of the two first is contained a perfect *o*, as also another between the extremities of the two last, joining one into the other, as plainly appears in the Scheme. *s* is the other simple or principal letter, and is begun at the point where the line *d, h*, crosses the left side of the middle full stroke at *t*, carried upwards for some distance almost straight, and upon such a slope, that, when it touches the line *i, k*, (being there reversed full) it is in the middle of the last full stroke of the *m* extended; then is turned round to touch the line *n, o*, and continued downwards till it joins into the middle full stroke again; where, near *t*, it becomes a perfect full straight stroke, and so is continued as far below the small projected letters.

*u* is made of a perfect *o*, and an *i* joined into the right side of it.  
*b* is only the upper half of *f*, or of the straight full stroke joined into the left side of an *o*.  
 August and August at this distance.

#### *A Description of the second Scheme.*

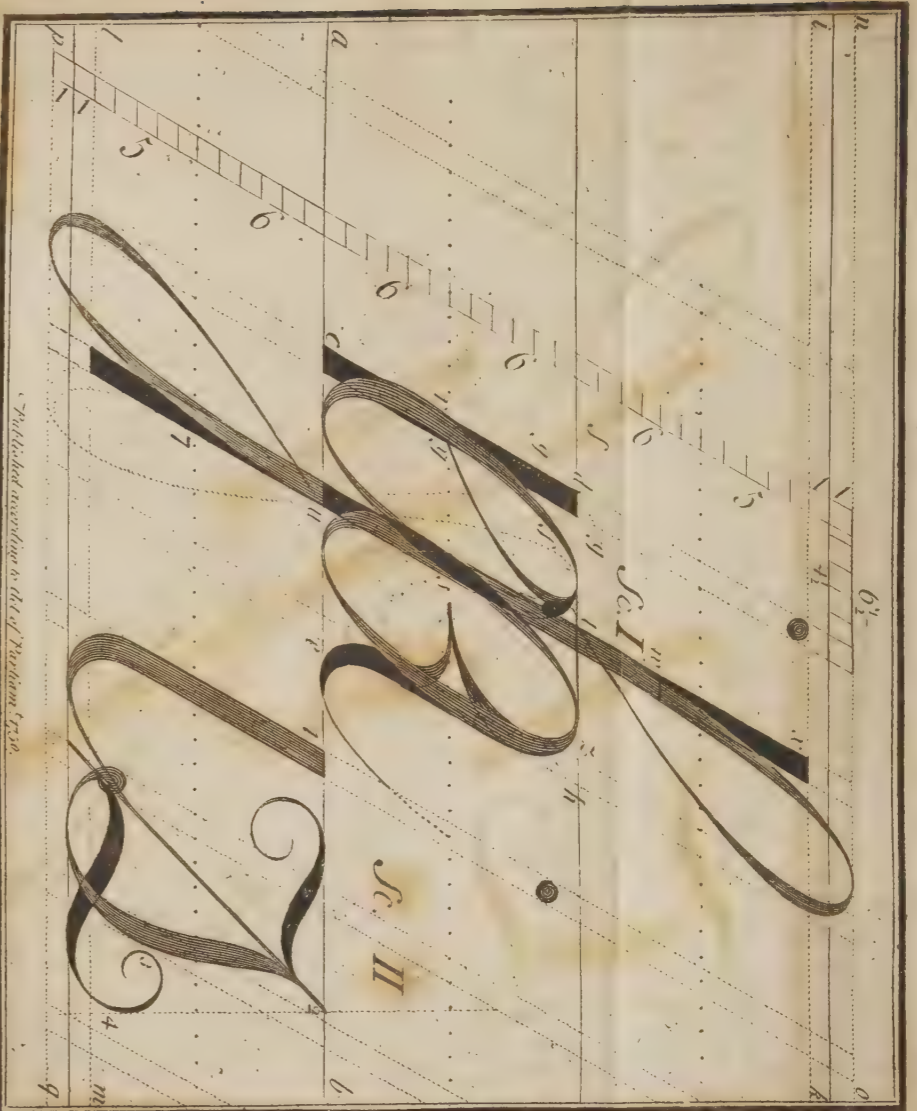
**T**HIS contains only *s* and *z*, with an *i* joined to the *s*; their height is the same with the small letters in the other Scheme, as is evident by the figure; it is also apparent, that the distance from 1 at the top of the *i*, to 2 at the top of the *s*, is  $10\frac{1}{2}$  divisions.

But that the *s* might have a more free turn and noble sweep, it swells out at 3,  $1\frac{1}{2}$  division further; making the distance from thence, to the left side of the full stroke of the *i*, equal to the breadth of the *m* in the other Projection. The hair stroke that joins the *i* and *s*, is most of it the same with the middle stroke of the *z*.

The last stroke of *z*, at 4, is extended so far to the right, that, if a line be drawn thereby to touch the point at 2, it will be perpendicular to the base *l, m*.

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Front the Art of Writing.

## The EXPLANATION of the above PROJECTION.

### A Description of the first Scheme.

**T**HE line *a, b*, is the base on which the small letters stand: upon it is described the equilateral Triangle, *c, d, e*; thus, extend a pair of compasses from *c* to *d*, and one foot resting in *c*, with the other the Arch *f, d, f*, is described; then with the same distance, and one foot resting in *e*, is described the Arch *g, d, g*; and where these Arches cross each other, is the point, from whence if right lines be drawn to *c*, and *e*, an equilateral Triangle will be formed, as in the figure. Through the point *d* is drawn the line *d, h*, parallel to the base *a, b*, which limits the height of every small letter in the Projection.

The side *c, d*, is the slope of every letter whole full strokes are right lines.

The line *c, d*, is divided into 12 equal parts; and the same divisions are also made from *c* to *e*.

Through the point *e* is drawn a line *e, h*, parallel to *c, d*, which two lines bound the outward width of an *m*, in which space all the other letters are contained, except the small *s* and *z*.

One of those parts is the exact breadth of any perfect full stroke; and  $4\frac{1}{2}$  of those parts, is the distance between any two perfect full strokes, in any letter whatsoever.

Next is described the lines *i, k*, and *l, m*, at the distance of 11 of these parts, upon the slope, above and below the projected letter *m*, and limits the length of all these stems, either above or below, that are straight in any letter.

The line *n, o*, and *p, q*, are two of those parts distant in the slope from the lines *i, k*, and *l, m*, and limits the length of every stem, above or below, that are turned round at the extremities, as of the long *f*.

**N. B.** In order to show how the letters depend upon each other, it will be necessary, here to inform the learner, that only the *o*, and the long *f*, are the simple, or principal letters; of which, and a straight full stroke, all the others are formed or compounded, except small *s*, and *z*, and part of *k* and *e*.

### To Trace out or Form each Letter in the Projection.

**O** is the most simple and principal letter in the whole Alphabet, and many more letters and strokes depend upon it, than any other; therefore it ought first to be well understood and well made; but it is a very difficult task to learn: Inasmuch, that I have laboured 2 or 3 whole days with a young man, very desirous to learn, before he could be brought to make it in its due form; tho' that one letter was his whole Business. However, I always found by this method of teaching to make an *o* well in the first place (which perhaps is much better than any other, excepting with Children) that all the other letters, except *s* and *z*, may be learnt as perfectly, with as much ease, in the same quantity of time. But after all this, (how soon soever a young man may learn to shape his letters exactly) if he does not practise it some considerable time afterwards, with care in imitating a good example, as well as a master's watchful eye over him, attended with frequent remarks, and a renewing of the former Instructions; he will never come to write lively, free, bold and regular strokes, but even lose in (perhaps a very little) time, what he had attained to, so as to be little or no better for it: tho' otherwise he might have been an excellent proficient.

But to return: The breadth of the Projection is only three full strokes, at their proper distances from each other, excepting one hair stroke; and between the extremities of the two first is contained a perfect *o*, as also another between the extremities of the two last, joining one into the other, as plainly appears in the Scheme. *s* is the other simple or principal letter, and is begun at the point where the line *d, h*, crosses the left side of the middle full stroke at *t*, carried upwards for some distance almost straight, and upon such a slope, that, when it touches the line *i, k*, (being there reversed full) it is in the middle of the last full stroke of the *m* extended; then is turned round to touch the line *n, o*, and continued downwards till it joins into the middle full stroke again; where, near *t*, it becomes a perfect full straight stroke, and so is continued as far below the final projected letters.

The lower part being exactly the reverse of the upper, needs no farther description. The middle straight full stroke beginning at *x*, and ending as far below the small projected letters, is so obvious, that it is needless to mention it here.

*l* is the straight full stroke from *x* to *s*, or the upper half of *f*, joined to the left side of the lower half of the *o* in the right side of the Projection.

*i* is the same, only shorter, beginning at *t* or *d*, with a little above it, as broad as the full stroke, touching the line *i, k*.

*n* is the straight full stroke *d, c*, joined to the upper half of the *o* on the left; and that joined at *s* to the lower half of the *o* on the right side of the Projection. Or the straight full stroke *t, u*, may be the first stroke of an *n*, and the latter is obvious.

*a* is made of a perfect *o*, and an *i* joined into the right side of it.

*b* is only the upper half of *f*, or of the straight full stroke joined into the left side of an *o*.

*c* is only the greater part of the *o* on the left, beginning at top, where it joins into the middle full stroke, and ending a little below *s*.

*d* is made of *o*, and *l* joined into the right side of it. *e* is part of *o*, with the additional stroke from *y*, to the top of the *o*; it ends near *s*.

*f* is the upper part of *f*, joined to a straight full stroke below, and ending at the line *l, m*, with a small stroke crossing it from *t* to *z*; or it may begin at *7* to bend forwards, turning round at the line *p, q*, and so on according to the dotted line.

*g* is made of *o*, and the lower part of an *f*, from *t*, joined into the right side of it.

*h* is made of a straight stroke, or the part of *f* above *t*, joined to the beginning of the letter *n*.

*i* is that part of *f* below *t*, having a little above it, like that of the *j*.

*k* is the same, with *b*, only it turns inward from the full below *z*, till it reaches somewhat near *s*; and from thence it turns outward into the full stroke again.

*m* has such an affinity with the strokes of an *n*, that it needs no further description.

*p* is made of a straight full stroke from *t* downwards, joined into the left side of an *o*; or from *n* downwards added to the first stroke of an *n*.

*q* is made of the first *o* joined into the middle straight full stroke from *t* downwards.

*r* is part of the first *n*, so far as the point where *c* begins, a little below *t*.

*s* is part of *l*, from *w* downwards.

*u* is two *i*'s joined; the first beginning at *d*, the second at *t*.

*v* is made of the first *n*, the last stroke being extended to the height of the other, near *z*.

*w* is the latter part of a *v*.

*x* is only two larger halves of two *o*'s joined.

*y* is the first *i*, joined to the straight full stroke of the lower part of *f*, from *t*; but generally it begins with a small oval turn, like the turn at top in the middle of an *o*; only not so wide; *z, z, z, z, z, z*, have commonly the same beginning stroke.

The reader may further observe, that as the upper part of the left side of an *o*, and the lower part of the right side of the same, represent their hair strokes, which they are not, (being imperfect fulls) therefore I assign, either the middle of this stroke, or the right side thereof, for the hair or joining stroke between all straight full strokes at this distance.

### A Description of the second Scheme.

**T**HIS contains only *s* and *z*, with an *i* joined to the *s*; their height is the same with the small letters in the other Scheme, as is evident by the figure; it is also apparent, that the distance from *l* at the top of the *i*, to *z* at the top of the *s*, is 10 divisions.

But that the *s* might have a more free turn and noble sweep, it swells out at *3*,  $1\frac{1}{2}$  division further; making the distance from thence, to the left side of the full stroke of the *i*, equal to the breadth of the *m* in the other Projection. The hair stroke that joins the *i* and *s*, is most of it the same with the middle stroke of the *z*.

The last stroke of *z*, at *4*, is extended so far to the right, that, if a line be drawn thereby to touch the point at *2*, it will be perpendicular to the base *l, m*.

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L O N D O N :

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MDCCLXXVI.



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# P R E F A C E.

**I**N compiling this little Treatise, I have endeavoured to offer such practical Remarks as may not only be useful to Boys of upper Forms, but likewise to those grown Persons who, perhaps from an injudicious Practice and wrong Information early suggested to them, may labour under many Inconveniences and Obstructions, in the Art of Writing, of which they may not possibly be aware. I am sensible how extremely difficult it is, even in the best Designs, to escape the Caprice and Malevolence of those, who fancy it their Interest to keep others in a *long Dependence* upon themselves. I shall be well satisfied, notwithstanding the Censure and Obloquy of such Men, if my Design meet with the Favour of the Candid and Ingenious, who, I would hope, upon a sufficient Trial, will find the Methods here proposed calculated for their Benefit and Amusement.

For this Purpose I thought it necessary to consider every HAND \*DISTINCTLY; be-  
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\* I would be understood by this *common* Term, as I go along, not that *Member* of the Body by which we

cause the Rules, which are justly laid down for a *particular* Hand, will certainly never be expedient for *every* Hand. I have therefore treated of them all as they are now used, and though I have been explicit in some, (and particularly in the Formation of the GREEK Characters, that the Penman, and Boys intended for a Course of Classsical Learning, might be acquainted with the most elegant and expeditious Method) yet I apprehend that the many Remarks, on that Head, will not be deemed superfluous. And, I would hope also that, as a tedious Prolixity is purposely shunned, I have not run into the other Extreme, an unintelligible Conciseness: I would in this respect, shun *Scylla* and keep clear of *Charybdis*.

It is not impossible but that some Objections may be raised to the *Precision* recommended in this little Treatise; as, that no Harm or Inconvenience would ensue, if greater *Liberties* were allowed in the Formation of Characters. Every one, who has seen antient MSS, must confess that too little Precision has been observed already among Penmen, unless they should write what  
 others

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we write, but every particular *Species* of Writing performed thereby. We seem to have adopted this to express the Writing itself from the *Romans*; thus *Cicero*.—*Cognovit MANUM et signum suum*. Vide *Godw. Rom. Hist. Lib. III. Sect. 1.*

others might not read. The Use of Characters is to convey Words, through the Medium of the Eye, as Words convey correspondent Ideas, by means of the Ear, to the Mind. Therefore, as our Minds require clear and significant Ideas, in their Acts of Perception, in order to reason and determine with Propriety ; surely it must be expedient from the *Characters*, which, compacted, form the Vehicles of those Ideas, should also be evident and perspicuous. But, if they be left to *arbitrary* Fancy, and every Writer may use them as he pleases, the Consequence is (as it has already been) that the subsequent Ages will be unable to read what the present has written. Thus, the *Characters* of BRITAIN, that now is, may be to Posterity as unintelligible, as the *Palmyrene*, *Phœnician*, or any other antient Symbols are to us.

And hath not every Art its prescribed Rules, the Breach of which is esteemed Ignorance ? Doth not *Architecture*, which alike depends upon the Eye, confine itself to the most exact *Proportions* ? And doth not a perfect *Symmetry* recommend itself to and command the pleased Attention of every Beholder ? Doubtless it must. And *Characters* admit of *Proportion* as well as the Shafts of a Column, or the Embellishments of an Entablature. A Piece of Penmanship, correctly performed, gives the Eye

a real Pleasure, and the most censorious cannot but commend.

Now, it must be acknowledged, that the Use of the Pen is as *necessary* as it can be *universal*; and that, as the most simple Characters must be most *useful* because most *easily* expressed, all *Complications* ought to be avoided, as well because they are *longer* in performing, as *ambiguous* when performed\*. Whatever tends to cause one Letter to be mistaken for another, however allowable in ornamental, ought to be excluded from useful Writing. Nor is it necessary, I presume, to assign many Reasons; every one, who acts upon the Theatre of Business, can determine the Consequences. And as Providence, in a wise and wonderful Manner, has varied in Men the Formation of the same Characters as much as their Faces, so the important Distinction may be maintained, in the very best Penmen, though all of them should write in one Mode and in one Proportion. This Difference will appear in a more striking View, when we consider the

*Sim.*

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\* I would not be thought, in this Place, to object against Contractions, &c. especially those of the ancient Characters, being *known*, because then we should exclude ourselves from an Acquaintance with some valuable Authors who have used them; but it may be necessary, as it is to be wished, that such a Usage might be *discontinued*; except in Stenographical Performances, where the Practice is essential.

*Simplicity* of that Form of Writing, employed in Business, that although each Letter is attended with such Ease of Construction, yet it is an insuperable Difficulty to write *exactly* after the Copy of another Man, or indeed to take a *like* Copy of what we ourselves have written.

Simple Characters are eligible, not only for the Sake of *Facility* but of *Expedition*. The Antients seem to have been sensible of this, and therefore we find most of their Alphabets consisting of Characters very *plain*, *obvious* and *simple*. Indeed, it might be said, their *Materials* \* compelled them to make such Characters, because, instead of what we use, or the Bark of a Shrub and Parchment afterwards used †, they employed

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\* “ Men wrote at first on Palm-tree Leaves; afterwards on the Rinds of certain Trees; afterwards public Monuments were recorded in Volumes or Rolls of Lead; at last, private Matters on fine Linen or Wax ” *Godw. Rom. Hist. Lib. III. Sect. 1.*

† The Shrub was of *Egyptian* Growth and called *Papyrus*, from whence our Term *Paper* for what we write on, though of a different Construction. Shortly after its Invention, *Ptolemy* King of *Egypt* prohibited the common making of it, on account of the Emulation which subsisted betwixt him and *Eumenes* King of *Pergamus* in their respective Libraries. *Eumenes* (tho’ some affirm it to be of more antient Usage) shortly after invented *Parchment*, calling it from the Place *Pergamena*. The *Romans* then used the *ceratæ tabulæ*. So *Plin. Lib. XIII. Cap. 11.* cited by *Godwyn* in *Rom. Hist. Lib. III. Sect. 1.* See also *Hor. Sat. Lib. I. et, in Noctis Dac. Quint. Lib. X. Cap. 4, &c.*

ed (*ceratæ tabulæ*) Tables rubbed over with Wax, on which they decyphered with a *Stylus* or Instrument, pointed at one End and obtuse at the other : Or, for Purposes more memorative, they *engraved* \* in Stone, Metal, or other durable Materials. But if simple Characters were found necessary for Dispatch, in such a disadvantageous Situation, with what Facility and Expedition must they now be executed, when we employ an Instrument as simple in Mechanism as any Character can be for Inscription ; especially, if we recollect, that we only *mark* what they must *engrave* ?

Our Present Design therefore treats of THE BEST METHODS OF MAKING, HOLDING AND MOVING THE PEN, SO AS TO DESCRIBE THE FAIREST AND MOST LEGIBLE CHARACTERS, ACCORDING TO THE KNOWN AND ESTABLISHED SYMBOLS OF THE MODERNS.

It must be confessed that there are not wanting an enormous Multitude of Pieces, (many of which are meritorious) proposed to us as Examples to copy after. But, as I have not seen any distinct Treatise as a Directory or Assistant *throughout the various Forms of Pen-*

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\* Thus *γράφω* originally signified, not *scribo*, for which it is now used, but *insculpo* ; and the Instrument for *engraving* (from *γράφω*) was called *γραψίς* or *γραφίον*, in Latin *Stylus*, i. e. the Graver.

Penmanship; and as the Man, who does not understand the Principles or Elements of the Art he professes, is but as an Empiric in Medicine, I humbly apprehend something of this Kind the more necessary.

With regard to the Instruction of others, I am sufficiently convinced what unremitted Labour and fatiguing Diligence careful Masters must take upon themselves, not only to sow the Seeds of right Instruction, but also to eradicate the pernicious Weeds of bad Habits: Nor is this required in any thing more than in the Art of Writing. And yet, after all their Pains, it often happens, that they can neither reap Satisfaction from the Parent, nor Credit from the Child. An over-weening Opinion of Genius in the Pupil, where possibly it may not be a little defective, commonly infers (in the Minds of many Parents) from the little Progress made, either a want of Care or Capacity in the Teacher, however able and industrious. In such a case, be it right or wrong, all the mighty Blame must rest with the Master, and the poor dear Child, though an unimproveable Lump of Dulness, must be reputed, through fond Partiality, inculpable.

As to those who, having done with Schools, would improve themselves in this necessary Art; I have had a particular Regard, in the Composition of this little Work, to what may be necessary for their Instruction.

Instruction. For this Reason I have treated of the several Modes of Writing with the greater Perspicuity, and, to render the Attempts of such Readers the more successful, have endeavoured to point out the necessary Connexion betwixt the *Mind* and the *Fingers*, and betwixt *these* and the *Pen*. For as the Pen receives its Motion from the Fingers, and cannot describe with Propriety unless it be properly impelled by them, so the Fingers are instrumentally subject to the Mind, and only in Proportion as *that* admits and retains just Ideas of good Characters, can *these* be enabled to execute them. Without fixing such Ideas (which indeed are only attainable by knowing and observing the right Proportions and Distinctions of Characters) a Learner may blunder on and waste much of his Time and Paper to very little Purpose. We all know that, in other Matters, not so much the Quantity as the Quality determines intrinsic Worth ; and so in Writing, not the *Multitude* of Letters made, but the *Manner* in which they are made, constitutes good Penmanship. And if it be thus in the *End*, it necessarily must in those *Means* by which that End is to be attained. To this may be added, the longer a Learner accustoms himself to a bad Mode of Writing, with the more Difficulty is he to be recovered to a good one. Habits, whether proper or improper, are not to be altered with ease ; and therefore it must be undoubtedly

right.

right to assume early a consistent Method, that, by Practice, may be acquired a just Habit of writing with Freedom, Judgement and Elegance.

But possibly it may be enquired by some, more sordid than ingenious ; *Are we not to write but with such Accuracy ?* I might answer, that the greatest Accuracy should be attended to by those who are learning, or those who are teaching others, to write ; because, in the first place, if Pupils are early initiated in the best Method, and taught to describe the best Characters with Propriety, they acquire an Habit of clear intelligible Writing, as well as a desirable Facility and Expedition, not otherwise attainable. And, secondly, if Teachers adhere not to these Peculiarities of good Writing, it is impossible that they should teach them to others, or write *correctly themselves*. Add to all this, the Commendation of fair Characters, whether considered in the Transaction of *Business*, the Communication of *Correspondence*, or the Labours of the *Study*.

There are others who object the Use of any of the *black Hands*, as the *German Text*, &c. alledging, “ That they spoil the young “ Learner’s *Round Hand*, giving it a Stiff-  
“ ness which ought to be avoided.” In opposition to such an Objection, I would place all the accomplished Penmen in the World, as so many Instances to contradict it. Not  
that

that I am for setting a Boy Copies of *Engrossing* before he knows how to write a good Line in the *Round Hands*; but I would assert it necessary, after he has attained a tolerable Execution of them, to instruct him in the others, if he be designed to be perfect in any Hand. As in Arithmetic, the more Rules a Pupil acquires, the more perfect he will be in any he has acquired; so the Attainment of one Hand in Writing is an Improvement of another already attained. How far this little Work of mine may conduce to so valuable a Purpose, is not for me to determine. To those therefore who are concerned in the Teaching of others, or to the Experience of those who either have or may use them, I submit the succeeding Pages; and, if I might be permitted to name myself, as I have experienced the Utility of the Method here exhibited, with the greater Confidence and Assurance of Success, I can recommend it to others.

Let me add what, with Pleasure, I have often observed; great has been the Improvement made in the Art of Writing, within the two last Centuries, and especially since the Round-Hands have been adopted by our Schools and Counting-Houses.—*Hands*, eminently *beautiful* in themselves, when justly performed, and, by the Conjunction of their Characters, rendered remarkably *expeditious*. What greater Improvements remain

main to be made, and to how superior a Degree this Art may be carried, Time and Industry may determine. It is not however impossible but that the *next* Century may as far exceed *this*, as *this* has exceeded the *last*: Or that, when Methods more advantageous may be discovered, these may be thrown aside as useless or obsolete.

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THE  
ART  
OF  
WRITING, &c.

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CHAP. I.

*Of WRITING in general.*

**W**RITING is the Medium, by which  
*our Ideas* have Communication with  
*others' Ideas*, and indeed our own *recent*  
Thoughts, otherwise erased, with our *present*. And  
as the Hand must be guided by the Mind, if the  
Mind has not a clear *Perception* of any Mode of  
Writing, it follows that the Hand cannot have a  
proper *Action* according to *that* Mode. Teachers of  
others should therefore, however it may have been  
neglected, labour to impress the best Forms of  
Character, and the best Method of Execution, up-  
on their Pupils' Minds, that they may express sy-  
nonymous Representations with their Hands. As  
the *best Dialect*, in Elocution, is acquired by Imi-  
tation of the *most correct Speakers*, so the *finest*  
*Hand*, in Writing, must be obtained by a good  
Attention to, and close Imitation of, the best *Wri-  
ters*. In order, therefore, to attain so desirable  
an End, we must consider the *Characters* which  
we write, their *Proportion*, the best *Method of*  
B *framing*

*framing* that Proportion, and, as we go along, it may not be improper to say something of the *Materials* and *Implements* of Writing.

## SECT. I. CHARACTERS.

A CHARACTER is a plain *Mark* made at one Operation or Motion of the Pen \*.

Of Characters there is a great Variety, some peculiar to one Hand or Form of Writing, some to another. Therefore to write well in any particular Hand we must describe the best Characters belonging to that Hand.

## SECT. II. PROPORTION.

Every Letter or Character must have a *due* Proportion or Shape, or it would, through arbitrary Practice, be exposed, to such Alterations, as would make it cease to be a Letter or a Character intelligible to others, which is its chief Use. Hence appears the Necessity of some Standard or established Mode of Writing, that our Ideas by *certain* Marks may be rightly conveyed to others, or to our own Understandings. Let this suffice for *Characters* and their *Proportion* in general.

SECT.

\* This is said of Characters in general, without descending to any particular Alphabet. The *English* Alphabet consists of twenty-four Letters, (though some of the learned Languages have not so many) which may be arranged into 620, 448, 401, 733, 239, 439, 360,000 different Combinations. This Investigation, more curious than useful, is *easily* performed by those who understand the Power of Numbers, by a Series of simple Multiplications. *Clavius* the Jesuit, as cited by *Massy* in his *Origin of Letters*, p. 9. seems to have made an erroneous Calculation.

## SECT. III. PARTICULAR CHARACTERS.

The *Hands* or particular Forms of Characters, useful and ornamental, now most used, are, the ROUND HAND, ITALIAN HAND, OLD ENGLISH TEXT, GERMAN TEXT, SQUARE TEXT, ENGROSSING HANDS, ROMAN, GREEK, and HEBREW Characters.

Each of these I intend to treat of in order, together with the Method of writing them.



## C H A P. II.

## R O U N D H A N D.

**I** Shall not treat of this *Geometrically*, because whatever Speculation may derive from it, Use receives nothing. It does not contribute to a *masterly Execution* of any just *Proportions*, but it often cramps and perplexes the Hand and Idea of the Writer \*.

In writing this Hand, let the Slope be inclining to your Right-hand, easy and graceful. It is of little Matter whether the Inclination of the Stroke be 58, 60, or 62 Degrees, since it is impossible for any to write in either, to any Degree of Certainty, without Lines. This however must be attended to, that the Slope and inclination of every Letter, and particularly the more upright

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right

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\* Here, if I might presume, I would suggest a Caution to the Teacher, not to permit his Pupils to scribble over a *great deal*, but to write a *little* to some Purpose. Nor should they be suffered to write *too fast*, nor to use *hasty* Motions of the Pen; for a *steady certain Sameness of Pressure* can alone accomplish good Writing, either by the Master or Scholar,

right Letters, must be as nearly the same as the most discerning Eye can discover. For if one Letter be made in a more upright Situation than another, the whole Line is spoiled, though the Form of the Letters be made never so correct in other respects.

The Pen ought not to be held too close to the Nib, for in that Case the Fingers cannot be exerted with such Freedom. Half an Inch (or perhaps three-quarters) will be the nearest Distance we should allow the Fingers to approach to the Nib, and especially to *young Pupils*, who are not always very careful in preserving their Paper or Book from Blots and Seiling.

When a Stroke is once performed, no Addition should be made to it, as it very rarely succeeds, and, if it did serve, the Practice is *not Writing*, but *Drawing* or *Daubing*.

Many People, and especially some Foreigners, instead of making the whole Spring in Writing consist in the Motion of their two Fore-fingers and their Thumb, have an irksome Custom of *justling their whole Hand up and down* the Paper, in forming the ascending and descending Strokes of every Letter. No *Piece of Penmanship*, thus performed, can be worth looking at, for, besides the disadvantageous *Manner*, the Writer's Arm is in such continual Agitation, that scarce a Stroke can be made *clear*, and consequently not *correct*.

The Capital Letters should, in my Opinion, to appear graceful, rather exceed double the Height of the common ordinary ones; but the *b, d, f, g, h, j, k, l, p, q, s, y*, of the small Letters, if they *ascend*, should be just double the Height of the *a, m, n*, or any of that Class: And if they *descend*, just as low; so that, for instance, the *f*, and *s*, will be Two thirds longer than an *m*, of which One-third will be *above*, and the other *below* the Line. The *t* alone must be excepted, which should

should arise but One-sixth above the Line, and be intersected by a *fine* Stroke just half that Space.

Many People, whose Hands do not appear at first Sight contemptible, are not aware of the Impropriety of beginning the Top of a Letter *thick* and *strong*, and then near the Bottom before they ascend the fine Stroke, decline that Thickness. This must be avoided, if we study Correctness. Some run into the *other* Extreme, and the Tops of their Letters have fine Points and thick disagreeable Bottoms. Others again form a Thickness in the Middle, while either Extreme, like a Conic Spindle, is weak and pointed : And many (especially those who, from much Practice of the Greek or the Law-hands, would turn to this) make the *Thickness* of the Letter, when they should form their *next fine* Stroke. But every Letter should, after its first fine Stroke is made, descend with an even, easy Thickness, till it ascends in its last fine Stroke, or is continued to the Formation of the succeeding Letter.

With regard to the Thickness of the descending Strokes, I would recommend it to be One-third, or rather more than the Distance betwixt the *main* Strokes of every Letter ; as for Instance, an *m*, or *n*. But this will admit of Variation, according to the Hand of the Person ; for in some a more slender Proportion appears as *graceful* as a stronger does *correct* in others. Not unlike the Orders of Architecture, in which the *Tuscan* and *Doric* appear as firm and substantial, as the *Ionic*, *Corinthian*, and *Composite*, strike the Eye with their Delicacy and Elegance. I would only recommend an *uniform* Thickness, not only in *one* Piece, but in *every* Attempt of Writing, since I know how much it will contribute to Correctness, after repeated Trials. Let me add, that, if the Person would write for Engraving and

does not attend to such Correctness, what possibly appeared pleasing to the Eye at first, will after the Graver appear but very contemptibly.

The Distance betwixt Word and Word is sometimes not sufficiently regarded. Let that be only the Space which an *o*, or *n*, of the same Dimension with those Letters in the Line, would occupy if it were necessary to place them.

Young Learners, I have often observed, acquire an Habit of making the last Stroke of the small *r* *inverted* from the Middle, like the last Stroke of a *v*. To avoid this Inaccuracy they should be directed to carry the leading Stroke, from the Middle, as though they were going to make an *m* or *n*, and, when they have reached the upper Line, not to bring the Pen over to form a kind of Loop, but to make a *short* Descent, bearing it *lighter* till it terminates in a fine Stroke.

These are the most material Directions which occur to me in writing this beautiful Hand, with Propriety and Elegance. As the *large Round Text* is derived from it. and cannot be considered as a distinct Hand, the same Directions will serve. The *running Hand*, so well adapted to Business, springs from the same Source, though indeed it admits of a greater Latitude, with respect to the Observation of any prescribed Rules. It should however to young Pupils, and others learning to write, be diminished of all that Redundancy of Flourish and Striking with which many use it; and may be either more contracted or widened, (in the Distance of its Letters) as the Writer shall please. But if it be written too close, one great End of its Use is lost; I mean *Swiftness*: as, on the other hand, if its Width be too extended, its *Correctness*.

From the Observation of these necessary *Proportions* which School-Masters should, if they  
aim

aim at any Perfection, inculcate with the utmost Care and Diligence, we will now, as proposed, offer some Hints on the MEANS used in attaining to a *masterly Execution* of this necessary Art.

Let the LIGHT, by which the Person writes, come from the Left-hand, otherwise the Pen gives a disagreeable Shade to that part of the Paper where the Eye must be fixed. The SEAT must be so constructed as to be *easy* (for it is impossible to write well in an uneasy Situation) and of such an Height that the Person's Legs may neither be hanging nor thrown too much out. The lower Part of the DESK should be just as high as the Writer's Elbow, when he or she sits on the Seat, and the Hand is lifted up. Let the Teacher be always careful to direct the Pupil never to lean with his Stomach on the Desk, since it is not only *prejudicial to Health* but *obstructive to good Writing*. The PAPER, in *this* and the *Italian Hand*, should be placed somewhat *awry*, and *inclining* a little to the *left Hand*. The more the Penman inclines his Paper to the Left, the greater will be the Slope of his Writing to the Right. Let the Writer be seated exactly before the Desk, with *both* Elbows upon it, resting lightly upon them. In this Situation, the Writer not only is capable of exercising his Pen with *Ease* but with *Freedom*; and to hold out for many Hours together, with less Fatigue than can be imagined\*.

Thus

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\* This is a very considerable Objection to the Method which some use of keeping the Elbow of the right Arm close to the Side in writing, in which Situation they must sustain, in the Course of a few Hours, great Weariness: But this is not all that might be objected, for the Palpitation of the Heart, and the Motion of the Lungs in breathing continually,

Thus provided with a good *Light*, an *easy-sloping Desk*, and in a *proper Situation*, we are ready to exercise the PEN, which ought to be *good*, or our Expectations of fine Writing are in vain. Some use Pens made from Quills that have been clarified, &c. (which are undoubtedly the best for Business) but I would rather choose, for my own Part, an *old Quill* dropped from the Goose when *fully ripe*. After the Film on the Outside is scraped off with the Back of the Penknife, let the Pith be extracted from within. And in making the Pen, if Care be not taken, the Split will *gape* or *open*, and consequently the Pen will be good for but little; but when it is *fine* and *clear*, as may be easily seen, then proceed to draw it to a *Point*, so that, on each Side of the Split, the Shoulders of the *Nib* may be *equal*. Then with *one* Pressure of the Knife, let the *Nib* be made as *exactly square* and *even* as possible, and not, as many do, one Side of the Pen *for this Hand* longer than the other. Only let it be observed, that the *Length* or *Shortness* of the Pen's Shoulders, must be as the Writer bears *heavy* or *light* upon his Pen.

I would, in this Place, just drop an Hint upon the PENKNIFE and INK, which are very essential Means to effect our Purpose.

If the Knife be not preserved from a *rough Edge*, it will be impossible to make a *clean-pointed* Pen with it; and if the Blade be *dull* one must expect

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ally, cause an Heaving of the Body, which, by its Attachment is necessarily communicated to the Arm, that cannot be preserved in too firm or too steady a Position. People, who write much, neither do nor can maintain such a Situation for any Time. Ease dictates a different Practice; and, without Ease in the Posture of the Body, no good Performance can reasonably be expected.

a *mangled* Quill and a *lame* Performance. The Writer might find the Advantage of having two Knives, the one for *shaping*, and the other for *nibbling* his Pens; the latter of which cannot have too fine or too keen an Edge, since the Excellence of the Pen depends upon it.

As to the INK, with which we would execute our Performances, it ought not to be *thick* or *gummy*; it cannot be too free from either of these, to flow through the almost imperceptible Split of a good Pen. And, therefore, especially in the *Round-Hand*, we ought not to dissolve *Sugar*, &c. in our Ink-Glasses; nor, as many do, stuff *Cotton* in them, since they equally spoil the Pen, and consequently will injure our Writing.



### CHAP. III.

#### ITALIAN HAND.

THIS graceful Hand has, of late Years, been peculiarly practised by the Ladies; and, when executed with *Freedom* and *Correctness*, strikes the Eye very agreeably. It seems indeed best adapted to the *Fair Sex*, in the Slendernefs of its Characters, in the Delicacy which appears in the Formation of them, and in the easy Pressure which the Pen requires to execute them. Undoubtedly it is not so well calculated for *Business* or *Study* as the preceding Hand; yet as it has something more genteel in its Appearance, it is deservedly the *Amusement* of young Ladies, and must be known by those who would be qualified to teach others the various Hands of WRITING.

The Slope or Inclination of this Hand, like the *Round*, must be to the Right, and of the same Declension.

extension. Some People rule oblique Lines, that the Slope may be preserved, with a certain Sameness, throughout the whole Piece; but this Method might be well rejected, since it must *perplex* the Writer to preserve a Consistency with the Lines, and rob his Hand of all *Freedom* in forming the Letters, without which this Kind of Writing can make but an ill Appearance. Add to this, *Use* and *Attention* will soon supply the Place of any Lines, and give Freedom and Elegance, otherwise to be despaired of, to every Performance.

The same Proportion, with regard to the *Height* of the Letters, will serve for *this* Hand as for the *Round*; and therefore I would refer the Reader to the Directions, given in the *last* Chapter, for that Purpose.

In writing this Hand, all Strokes which may be supposed *duplicate*, must have a greater Thickness, and be performed by a proportionable Pressure of the Pen. The upper Part of the *a*, for Instance, where the descending Stroke joins the Oval, must be made *thicker*, and decline gradually as those Strokes become more and more detached from each other; but, when quite detached, must preserve the Thickness of *all* the other *descending separate* Strokes, in the same Line or Piece. Thus we must also deal with the *d*, *g*, the Bottom of the *b*, the Top of the *i*, *j*, the *k*, *m*, *n*, *p*, *q*, *r*, *t*, *u*, *w*, and *y*.

The Width of every Letter, except the *m* and *n*, must be the same as the *o* or *n*; for an Example of which, some good Copy (of which there are many extant) should be exhibited to the Writer. But the Distance betwixt Letter and Letter, should exceed the Width of an *o*, but not quite equal that of an *m*; a Medium betwixt these, if the Writer can conceive it, I would propose as the Distance.

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The Pen in *this*, as well as the Round-Hand, to which it is very similar, should have its Point flat with the Paper, and be inclining neither to the right Hand nor to the left. In this Position it will write *clean* without scratching; which, besides the disagreeable Noise attending it, adds a Roughness to every Stroke, and soon ruins the best Pen.

The *Distance* betwixt one Word and another in this Hand, may well be allowed, on account of its slender Looseness, to be the Breadth of an *m*; observing, which is sometimes not attended to, that the Space, from a *capital* to a *small* Letter, should be the same as from one small Letter, to another.

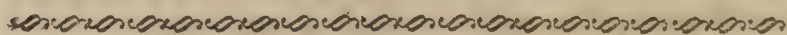
This Hand requires the Fore-fingers to be as remote from the Nib of the Pen as the Round-Hand, or rather more. And every Stroke should be executed with a gentle Motion of the Fingers, without any Concussion of the Wrist or Arm. Of this see more in the former Chapter.

I would, in this Place, object to the Custom, prevalent with many, of adding unnecessary *Tails* to the last Letter of a *Word* or *Line*. If the Piece be *well* written, it needs no *such* paltry Decorations; but if it be badly performed, they are, in every good Writer's Opinion, no Addition to make it valuable.

Something might here be said upon the Subject of *ruling Lines*. Children who need Leading-strings, must and should have them; but the Pupils, whose Hands must be devoted to Business, should, as early as possible, be taught to *write without* them.

In the common Occurrences of human Life, as all are not fated to observe the strict Rules of elegant Penmanship, the running Hands whether *Round* or *Italian*, must be performed without Lines  
of

of any Kind, and therefore little need be said concerning the Propriety of disusing them, after Pupils have attained any *tolerable Ideas*, or *moderate Execution*, of good Letters.



## CH A P. IV.

### OLD ENGLISH TEXT.

**T**HIS *Hand* seems originally derived from what the *Germans* now use in printing their religious Books, &c. and was much practised in *England* by the Monks, &c. in their MSS, before the Invention of Printing; though now it is seldom used but in printing Acts of Parliament, &c. It has, when well executed, a good Aspect; and, in Pieces of various Kinds of Penmanship, stands, with a peculiar Grace, to great Advantage. It is necessary therefore for those, who make the Art of Writing any Part of their Amusement or Study, to be acquainted with it.

The Paper, in executing this Hand, should lay *straight* upon the Desk; for a Disadvantage immediately arises from an Inclination of the Paper either towards the right Hand or the left. For, as this Hand must, to be well done, stand quite upright, if the Paper lean to the Left, as in the Round and Italian Hands, the Characters will incline to the Right; and, if the Paper be placed towards the Right, the Letters will fall to the Left.

Till the Pupil is perfect and arrived to a good Execution, let double Lines be drawn for the *Height* of this Proportion to the *Thickness* of the Letter\*. After you have made your Pen (for which

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\* The old MSS. which I have seen, are ruled so as to admit of the whole Height and Descent of the Letters

which see towards the Conclusion of this Chapter) upon your blotting Paper describe a *descending Stroke* by such a Pressure as you would form a Letter, and with a good Pair of Compasses take the *Width* of that Stroke; *four* or, at most, *five* times more than that Dimension will be the Height.

Let your Paper be *pounced* before you proceed, but not so immoderately as to hinder the Ink from sinking into the Paper; and, on Vellum or Parchment, it will be best to use *no Pounce* at all, but in case of Defects.

The *ascending* or *leading* Strokes are to be formed only with the left *Edge* or *Corner* of your square-pointed Pen, nor are they to be drawn longer than the Thickness of the main Stroke before they reach it, nor go beyond the *right* Extreme of that Stroke in *ascending*, or the *left* in *descending*; that is, neither *above* nor *below* the double Lines. The *first* fine Stroke, for Instance, of the *n*, should terminate at the Top in an Angle, and likewise the *last*. The Use of not allowing the fine Strokes to exceed more than double the Width of the thick Strokes, will be discovered in forming the *o*, and all its dependent Letters.

The Distance betwixt Stroke and Stroke, or Letter and Letter, should be at farthest, not above twice the Width.

As the Form of this Hand is perfectly perpendicular, so if any one Stroke in a Line vary from that Rectitude, the Piece is spoiled.

What will contribute very essentially to this Uprightness, is the Position of the Writer's Body and Arms. The Body, placed exactly before the Paper, and the Extension of both Elbows upon the Desk, will lead him naturally to make the

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Letters

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Letters, and seem to have been rather intended to preserve the Lines distinct than to limit the Proportion of the Characters.

Letters perpendicular, and also to draw, most advantageously, the fine leading Strokes.

The fine Strokes within the capital Letters must be drawn with the left Corner of the Pen, as also the Punctuation of the *i*, the Length of which should be equal to the Letter's Thickness, and its Situation not far above the Letter itself.

The Pen must be held *assant* to the Paper, with its Hollow towards the Elbow, and it ought to be moved only by the Springing of the Fingers, without any Justling or Motion of the Arm.

The Height of the capital above the common small Letters should be about *half* the Height of these last Letters themselves. The Thickness of the Strokes should be *equal*, and the Performance of the same Pen. For if the *Height* of the Capitals be allowed to be more, or their *Thickness* to be greater than this, they would, in the first Instance, appear too *fine* for this *masculine* Hand, and, in the second, want just *Proportion* and *Correctness*. Besides, if a Repetition of Lines should be necessary, an extraordinary Bulk in the capital Letters must necessarily widen the Lines from each other more than the just Distance, which, I suppose, should be exactly the Height of the common small Letters.

In the most correct and antient Specimens of this Hand which I have seen, the Parts of the *g*, *p*, *q*, and *y*, which fall beneath the Line, scarce exceed one-third Part of their Height which is betwixt the Lines, and thereby the Writers of them preserved the Advantage of having the Width of the Lines to be the Height of the Letters; for, if they had descended lower, the Bottoms of *these* Letters would frequently have been made on the Tops of the tall or capital Letters in the next Line, and consequently have spoiled the Piece. But, allowing *these* one-third below, and the *others* one-half above the Line, a sufficient Distance is preserved,

preserved, even though a *Capital* should stand under a *descending* Letter. One-third likewise, above the Line, may be allowed to the *upper* Part of the *v*, *t*, and the *first* Branch of the *w*.

The capital Letters of this Hand will not properly admit of Flourishes and Ornaments, as in the *German* or *Square Texts*, intermixed or drawn within their Branches, but should stand at some little Distance. This Hand, indeed, demands such Trappings and Decorations less, I think, than any, standing like a *Tuscan Column*, in a *strong* and *regular* Formation, best adorned with the *firm* and *smooth* Execution of a good Pen. A plain Line, drawn at a convenient Distance, tends to discover the native Beauties of a good Piece in this kind, more than a Multiplicity of ill-placed or, perhaps, even handsome Striking, circumscribed and employed in its Stead.

Due Attention should be paid to a right framing the Pen in the Execution of this nervous Hand. A strong or clarified Quill is preferable to any of the common Sort, because better able to sustain the necessary Pressure of the Writer's Hand, and likewise the requisite Breadth at the Nib of the Pen. The Shoulders (or that Part of the Pen which forms the Nib) should be *rather* short than long, for the above-mentioned Reasons. The Slit must be clear and of a moderate Length, and the Nib more or less broad as the Writing requires, with this Particularity, that, in order to suit the Position of the Body and Arm, the Side of the Nib, which in *writing* is to the left, should be *rather longer* than the other. It will be found, on Trial, to have a very great Advantage in performing all the fine Strokes, whether in the *Leadings* of the *small* Letters, or in the *Inside* of the *Capitals*.

There are only two Stops properly peculiar to this Hand, which are the COLON and the PERIOD.

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These are to be formed by two short Strokes with the left Side of the Pen, and by joining them with another made by its *full* Nib.

These are, I believe, the most material Directions which a Teacher of Writing needs to give, or his Pupil to follow, in attempting to attain the masterly Execution of the OLD ENGLISH TEXT, which seems most noble when plain, and best ornamented when its Letters are smooth, proportionate, and regular. Indeed, in many Hands, Flourishes of the Pen may serve to conceal the Defects of an ordinary Performance, but they contribute very little to illustrate or set off the self-sufficient Beauties of a good one.



## CHAP. V.

### THE GERMAN TEXT.

THIS most elegant of all the Modes or Hands of *upright* Writing, receives its Form, as well as Name, from the *Germans*. Something like it, but very far from the Perfection to which it is brought by some eminent Masters in *England*, is used now in *Germany* in printing their Books, &c. It seems a Corruption of the old *Gothic*, as that is of the *Greek* and *Latin* \*; and, by the Use of rude Materials, seems to have acquired, as well as the OLD ENGLISH TEXT, its *Size* and *Thickness*. The Manner, in which these our Ancestors wrote, obliged them to form their Letters thus, as well to make the Characters *legible* as *lasting*; nor do I suppose that, if furnished alike, the *Moderns* could considerably mend the Matter.

This

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\* See a curious Table of antient Alphabets, collected from Medals, &c. by the Ingenuity and Industry of Dr. *Morton*, of the *British Museum*, 1759.

This beautiful Hand is divested of the Stiffness of the *Old English*, and, in a good Performance, appears with *Freedom* as well as *Strength*. The *leading* Strokes, drawn by the left Edge of the Pen, should not be *straight*, (as in the other black Hands) but have a free and natural Bending, to which the succeeding Stroke or Branch of the Letter must be joined. These Ligaments, or connective *fine* Strokes, however, in the *Beginning* of Letters, (as in the *i, m, n, p, r, u, w, x, and y*) should be made *strait*, from which the strong Stroke is to be formed.

The leading Strokes may ascend or descend from the Line, but not more than the *Thickness* of the Letters.

The *bottom* Stroke which forms (as it were) the Basis of the *first* Branch of the *b, k*, the *two* first of the *m*, the *former* of the *n*, the *two* first of the *w*, and the former of the *y*, must have no *oblique* leading Stroke, but terminate with a *Square*, formed by a *firm resting* of the Pen.

As this Hand is wholly *ornamental*, so Writers take great Liberties with the Proportion of the Letters, making them *stronger* or *thinner* at their Pleasure. It ought not indeed to be of *like Substance* with the *Old English*, the *Square-Text*, and some other of the *Black Hands*; but, at the same time, if written too fine, it loses that *majestic Firmness* which is its distinguished Characteristic. To acquire, therefore, a good Idea and handsome Proportion of the Letters, let some good Piece be laid before the Pupil, after which he may copy and form his Hand.

It would be almost needless to observe (when a Writer is capable to begin this kind of Writing) that the Letters must be equi-distant, and bear the Proportion of the *n* and the *o* to each other. He must necessarily see, that, if the Letters have

not the same Inclination and Rectitude, the Piece will be deformed; and that, if the Edges of the Strokes be *rough*, all *Grace* is lost in his present Design.

The capital Letters will admit of great Latitude, with respect to the Proportion they bear to the others. Some choose to make the Branches of the *A, B, M, &c.* by *Command of Hand*; but, unless they be done *judiciously*, and with *Freedom*, they have an ill Effect. In Pieces not very large, it perhaps might be better to omit such a Practice, and to form them more proportionate to the Height of the smaller Letters. And, possibly, the Proportion of *one and a half more* would not be too confined. Let it suffice only to say, that the nearer *this* Proportion is preserved, a good Piece will have the more striking Effect, and receive that Advantage, which can only be explained to the Artist by a confirmed Use.

The Paper or Book, in this and in all the *perpendicular* Hands, must lay *straight* upon the Desk. For the Reason of this, the Reader is referred to the last Chapter, as well as for the proper Position of Body and Arms.

It will be useful to pounce the Paper *moderately*, before the Pen is committed to it in this and in all the strong Hands. I would only suggest one Caution in *pouncing*; let not the Pounce be *rubbed* in (as many do) with a Piece of Paper, for this Friction takes away the *Smoothness* of the Paper designed for writing upon, and consequently the *Smoothness* of the Letters; but, instead of this, let a clean Hare's Foot, or something of a soft downy Nature, be used, which may gently brush the Pounce into the Cavities, even of the finest Paper, invisible perhaps to the naked Eye, but discernible enough by the Microscope, and thereby answer the intended Purpose.

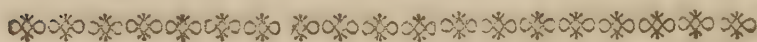
The *Pen*, and the *Quill* of which the Pen is made, may be the same as what in the last Section was recommended for the *Old English Text*, being made *wider* or *narrower* at the Nib as the Writer pleases or his Piece requires.

The Stops are the same with the *Old English*, and executed in the same Manner.

The Pen must be held *aslant*, so that the bending Letters, such as the *c*, *e*, and *o*, and others, who have bending Branches, as the *a*, *b*, and *e*, may have an *easy* Form, which indeed the Pen naturally tends to execute, if held in the above Direction. It should be remembered that, as it is impossible to write well in any Hand or Mode of Writing with a bad Pen, so no particular Hand or Mode can be well executed, if either the Pen is made unsuitable to, or the Hand held in a Position improper for that particular Mode. If this were more attended to, in every Branch of the Art of Writing, neither Pupils nor Masters would labour so long to so little Purpose, as indeed it is but too common to do. What is here offered to both will, I presume, if attended to, remedy an Inconvenience no less injurious to the *Pocket* of the Parent and *Time* of the Pupil, than to the *Reputation* of the Master himself. And as to those, whose chief Concern is *to make the most* (as 'tis said) of every Pupil, the *INGENIOUS* and *WORTHY* of the Profession will pardon me, I am sure, in saying, that the *SORDID*, [not to say worse] who aim so little at the Improvement of those *intrusted* to them, and so much to their own *private* Emolument, often are disappointed of their *ENDS* by using such improper *MEANS*. For at the long Run, that Man bids the fairest for Success and *real* Advantage, who, by all the Care in his Power, improves his Pupils, and withholds no Method of Instruction that will contribute to their *early* Acquaintance

quaintance with the Arts or Sciences, which he engages to teach them.

In writing GERMAN TEXT *small*, which indeed has no contemptible Appearance, the foregoing Directions will serve, the Pen being formed accordingly. The small ascending Strokes, however, which serve to connect the Branches of the Letters, would appear better *straight* than *turned* with that Freedom, so proper and allowable in the larger Copies.



## CH A P. VI.

### THE SQUARE TEXT.

**T**HIS Hand is also called ENGROSSING TEXT, but, I think, not altogether so properly, because the Letters are not similar to the *Engrossing Hand*. It is used indeed as a TEXT to it, in Leafes, Wills, &c. in which, by TO HAVE AND TO HOLD, by IMPRIMIS and ITEMS, it makes a considerable Figure. I conjecture that it derives its Origin from the *Old English Text*, and that before the Introduction of the *Round Hand*, it was principally (or a Set of Characters corrupted from it) used in our Writings, especially since the Norman Conquest. As it now is, it appears a Mean betwixt the *English* and *German Text*; its Characters borrowed from the *one*, and their *easy Shape* in some particular Letters, received from the *other*.

The Lawyers, who chiefly write it, sit exactly before their Paper or Parchment, extending their Arms a considerable Distance from their Bodies upon the Desk, which is indeed the most proper Situation for this Species of Writing. It requires this Extension of the Arm more than any other  
*Hand,*

*Hand*, not only from its perpendicular Disposition, but from the extraordinary *Width* and *Distance* of the Letters, whose utmost *Extent*, if circumscribed by Lines, should form a completely Geometrical Square, from which it seems to derive its *Name*.

The leading or fine Strokes must not, as in the *German Text*, have any Circumflexion, but be drawn as *straight* as possible with the left Edge of the Pen, and may ascend or descend from the Lines as far on either Side of the main Stroke, as the Thickness or the Width of the Pen's Nib.

It is customary in Indentures, &c. to make the Capitals, which begin them, very large; but, whatever becomes of that Practice, Reason urges the *Impropriety* of it. Capitals of such an enormous *Height* and *Bulk*, introducing Letters comparatively very small, puts one in mind of that extraordinary City, whose Gates were its principal Bulk. But

*Velle suum cuique est, nec voto vivitur uno.*

It may not be amiss, however, to recommend *some* Mediocrity in Works of this Nature, and to bring them as near to some kind of Standard as possible. And as the Height of the taller, inferior Letters, is twice the Height of the common Ones, and as the Capitals *ought* to be the Production of the *same* Pen, so, I suppose, they should not exceed them in Height. A Piece, though it may be without the gaudy Trappings of only *one* or *two* Letters, will have, when thus ordered, a *Regularity* and *Consistency*, which all the Profusion of Ornament can otherwise never give it.

The Pen, for this Hand, may be made *lower* towards the left Edge than what was prescribed even for the *Old English* and *German Texts*, and, if the Elbow be placed as before described, it will require it; especially in Pupils, who are more

apt

apt to make the Letters too narrow than too broad.

The Letters, that have any Turning, are formed by the *c*, the others by the *m* or *n*. Let these therefore be practised, in order to make the proper *Breaks*, and the rest, from good Examples, may be soon accomplished.

The Stroke which finishes the *first* Branch of the *h*, *k*, the *two* first of the *m*, the *former* of the *n*, the *two* first of the *w*, and the *former* of the *y*, must (as in the German Text) have no *oblique* leading Stroke, but terminate with a *square* Bottom formed by a *firm resting* of the Pen.

The Thickness of these Letters should be greater than that of the *German Text*, and the Letters themselves, because of the wider Proportion of the Hand, be set farther apart.

The Pen for this as well as for the *English* and *German* Texts, ought to be *strong* and *substantial*, able to sustain the Pressure of the Writers' Fingers, as well as to bear an extraordinary Width of the Nib. For if the Quill be too weak, the Shoulders of the Pen being also weak will yield, so as to cause the Breadth and Thickness of some Letters to vary from others. I need not say that then the Piece is spoiled.

The Stops (Colon and Period) are formed, just as the *English* and *German* Texts; by *two* short Strokes with the *left* Edge of the Pen, and by joining them with *another* made by its full Nib.

## C H A P. VII.

## THE ENGROSSING HANDS.

THE Engrossing Hands (because *in tabulas inferuntur*) are used for Perpetuity in Deeds of Law, &c. which if decyphered in some other Characters, a little Time might erase or make illegible. Of these, some are used for one *Occasion* in Law, and some for another. It would be no Part of my Business to determine the Propriety of using them on these different Occasions; nor is it necessary. Let it suffice for me, according to my Design, to exhibit the *best Method* I know of writing them, and to assure the Reader that, if he diligently attend to it, his Labour will not be in vain.

The chief Hands, used in *Engrossing*, are the *Engrossing* or *Common Secretary*, the *Running Secretary*, the *Chancery* and *Court Hands*.

SECT. I. *The Engrossing* SECRETARY \*.

This is the most expeditious of all the perpendicular Hands, and therefore for *Engrossing* is most used.

\* I have seen a *Fac-Simile* of a Writing done at the *Lateran*, from Pope *Engenius III.* in the Reign of our King *Stephen*, in the Year 1148, and also one from Pope *Honorius III.* in the Reign of *Henry III.* 1218, entitled, *Collatio Libertatum Regis Scoticæ per Honorium Papam*, both which seemed very like to *this Hand*, and possibly were a Corruption of the antient Roman, as that was of the Greek. See *Rym. Fæd.* Tom. I, p. 7. 227.

used. The Arm must be maintained in the same Position as it was in the Execution of the *Square Text*, viz. the Elbows must be extended the same Distance, the Body placed not to touch the Desk, (because it is both hurtful to Writing and prejudicial to Health) and the Paper or Parchment laid *straight* before the Writer.

The Fingers must be kept *firm* in ascending or descending, when the Writer forms this kind of Character; for if they be permitted to move in *too low* a Spring, the Writing will necessarily want that *Acuteness* in some Letters, and that *Strength* in all, in which the chief Beauty of this Hand consists.

The Construction is very simple, and may, with a little Application, be soon acquired to a tolerable Degree. There is likewise, to facilitate the learning it, a great Sameness in many of the Letters, as may be discovered, for Instance, in writing the Words *immunity*, *unmindful*, &c.

The fine or leading Strokes of this Hand, are also formed by the left Edge of the square-pointed Pen; but they do not, as in the *Square Text*, ascend or descend from the Line. Like the *English Text*, they are carried no farther than to form an Angle at every Extreme of the Letters, and serve to join every Letter to itself and to other Letters in the same Word.

The Capitals, as well as the taller inferior Letters, should be double the Height of the lower ones, except the *d*, *e*, *s*, and *t*, and the lower Branches of the *f*, *g*, *j*, *p*, *q*, *s*, and *y*, should descend as far beneath.

With regard to the Pen, its Nib should be *square*, or made a very little *longer* on the *left* Side. Its *Shoulders* may be formed not so short as for the *Square Text*, because it has not the same Pressure

and must be made to

to undergo, and because the Nib is much narrower.

The Distance betwixt Line and Line might be fixed at *treble* the Height of the smaller common Letters ; and the Width betwixt Word and Word the Breadth of an *n* or *o*.

This Hand, solely employed in the Law-Business, neither admits of nor requires any Ornament by *Command of Hand*, but its only Commendation to the Eye is the just Attitude, Height, and other Proportions of every Letter, Word and Line in the whole Piece. And let me add that, when the Person who would master it has acquired an Habit of writing it with Proportion and Correctness, his Performance will not only commend itself for *Fairness*, but he will also be enabled to execute it with greater *Speed*. The Man, who is engaged in a Race with every Obstacle removed from his Course has undoubtedly the Advantage of him who must turn and wind to get clear of every Impediment ; and therefore, not only in this, but in every Art or Science, when Difficulties are removed as well as a certain Rule pointed out, the *Mind's* chiefest Labour is accomplished. For as the *mental Energy*, in the Act of Reasoning, when it has properly arranged Ideas, can syllogize and deduce a Conclusion ; so the *Hand* likewise, when it has superseded or avoided any erroneous Practice in *Writing*, can attain a Perfection, not otherwise to be expected.

I would only add here, that, as the *Old English* borrows its Type from the *German*, the *German* from the *Gothic* or *Punic*, and *these* again from a Mixture of *Latin* and *Greek* ; so this *Engrossing Secretary* seems nearly allied to the *two last*. The Form of the *o* bears a Similitude to the *Alpha*, and especially the small *e* to the *Epsilon*. The *Round Hand* also seems to derive its Source from  
D this,

this, exchanging the *acute* turning of the Letters for the *round*, and, in consequence, an *upright* for an *inclining* Situation. What confirms me in this is the Number of MSS which, about one and two hundred Years since, were written with Characters betwixt our modern *Round Hand* and the *Engrossing Secretary*, not very unlike indeed to the *Running Secretary*, in use at this Day among the Lawyers. So that one can scarce find a Mode of Writing, or a Set of Characters, but what is either immediately *derived from* or bears *some Resemblance to* some Mode or Set, in use among other Societies or Nations of Men.

## SECT. II. *The Running* SECRETARY.

This, at first Sight, appears to receive its Birth from the *Engrossing Secretary*, varying only the *Inclination* of the Hand; for, as that must stand quite perpendicular, this must, like the *Round Hand*, lean a little to the Right.

The *acute* Turnings in the Formation of the Letters, must notwithstanding be retained, as in the *Engrossing Secretary*; though, in general, this Hand is seldom written with much Precision. I would therefore refer the Reader to the Directions which have already been given for the *Hand* immediately preceding, the Practice of which, as is evident among the Professors of the Law, frames the Writer's Hand to the Formation of this, as naturally as the Use of the *Round Text* to the *Round Hand*, and of *that* to the *Running*.

## SECT. III. *The* CHANCERY HAND.

This Mode of Writing, originally used in ancient Covenants, Charters, &c. and (as I conjecture) derived from the antique Roman Characters,

ters, has. if tolerably written, no despicable Appearance.

The Letters are not to be joined as in the other *Engrossing Hands*, nor are they altogether so detached as in the *English, German, or Square Texts*, excepting the *c, i, m, n, &c.* which, if they fall together, are to be *equi-distant*. But when a Letter, that has either one or more Branches of it *before\**, happens to stand next to upright Letters, (as the above) then there will be a necessity of beginning it nearer to the former Letter than the Space allowed for the straight and upright Characters. If, again, the Branch of the Letter forms a Round to the *right* or *behind* †, then the succeeding Letter, whether *straight* or *round*, must be placed nearer than the common Space of straight Letters. And if the Letter requires a Rotundation both to the Right and Left (i. e. *before* and *behind* ‡), then the Letter itself must be made closer to the preceding one, and the succeeding be set nearer to it than the common Space. The Reason for this Practice is founded on a Supposition, in the Use of the *Chancery Hand*, that the *Centers* of all Letters, whether *broad* as the *o* or *s*, or *narrow* as the *i* and *r*, should be preserved in an equal Distance, to which Rule only must be excepted the *m*, the *w*, and the *Diphthongs*.

The Characters are erect, or, if they be allowed an Inclination, it must be to the *Left*, the capital  
D 2 and

\* The Letters, whose foremost Branches have a Roundness to the *Left* or *before*, are the *d, e, g*, and *q*.

† Letters, forming a Roundness to the *Right* or *behind*, are the *p, w, &c.*

‡ Letters Round to the Right and Left are the *o, s, &c.*

and tall inferior Letters arising not more than twice the Height of the small ones. Those likewise, which descend beneath the Line, should preserve the same Length: But the small *a*, which has an Intersection at the Height of the common Letters, the *s*, and *t*, (though they rise above the Line,) are not to be of equal Height with the other tall Letters, as the Learner will perceive by attending to some good Example.

The fine upright Strokes, in some of the capital Letters, are formed as in the *Old English*, &c. with the left Edge of the Pen, and so are all the fine Strokes in the small Letters:

The two first Branches of the *m*, and the former Branch of the *n*, are not to be pointed at the *Bottom*, with a fine ascending Stroke, but to be finished with the *flat* Nib of the Pen.

The Pen should be made as for the former black Hands, having the Edge of it, which in writing is next to the left-Hand, rather lower than the other, that it may properly execute the fine and leading Strokes.

As every other *Law Hand*, so *this* requires the Paper or Parchment to be laid exactly before the Writer. Indeed it is scarce possible to make any Characters perpendicular, the Paper, &c. being placed otherwise; for this Position of the Paper, &c. and the Body, necessarily obliges the Writer to draw his Pen towards himself, and consequently to make the Letters *upright*. But, if the Paper, &c. be placed inclining to one Side or other, the Slope will deviate from the perpendicular accordingly.

Having given already the most necessary Directions for the proper writing the *black* and *upright* Hands, I would, to avoid Repetitions, refer the Reader to some foregoing Chapters.

Only

Only let me observe, that, in order to write this or any Hand, in a masterly Manner, the Writer should carry strong Ideas, derived from good Examples of each particular Hand, in his Mind, and copy similar Marks and Representations upon the Paper. To the want of Ideas correspondent with good Letters, as well as to improper Methods in the Act of Writing, must be attributed all *those Hands* which, after a Life spent in attempting to write fairly, arise to no higher Perfection than to be barely legible. Hence appears the Necessity that every Practitioner in this Art should study *each* Character of every Hand *distinctly*, after the best Examples, and likewise form every Letter *distinctly* and *perfectly*, before he attempts to form a Connexion of Characters for Words.

As in Language we must perform an Investigation of its several Parts to understand it *universally*, and attain its several Peculiarities to know it *particularly*, so in this divine Art, which pictures our Words as they are formed from Ideas by our Minds, we must acquire a Knowledge in *general* and an intimate Acquaintance with respective Characters in *particular*. If we pursue any other Method, we shall meet with Difficulties and Obstructions otherwise superseded, and (what is worse) may finally labour, as too many before us have done, a great while to little or no Purpose.

#### SECT. IV. *The COURT HAND.*

This enigmatical Hand, formerly much practised in the Law, ought to be learned in Writing, if no other Use redounded than the bare Reading of it. To acquire both the one and the other, our first Study should be thoroughly to understand all the *Contractions*, which once acquired, there remain no very material Difficulties to overcome.

For though the very Form of the Characters appears as abstruse to comprehend as those of the *Chinese*, yet the Pupil having once made himself acquainted with *each* Letter and the Abbreviation of *some* Syllables and Words, by a little Attention or Application will be enabled, in a very short Time, to read or to write it with Ease.

The Hand, Arm, and Body must be placed in the same Position as in the other *Engrossing Hands*, and in this Hand it will be peculiarly necessary; because of diminishing the Strokes of some Letters \*, which, in any other Situation, could not handsomely be done.

The Paper or Parchment being placed exactly before the Writer, I would next recommend, that the Nib of the Pen should be made rather longer on the left-Side † than on the other, for Reasons which I have before given in treating of the other black Hands. The Shoulders of the Pen should likewise be made longer than for any other *Engrossing Characters*, that it might, by having a proper Spring, execute with Freedom some of the large or diminished Strokes, found in some capital and small Letters.

The *Conjunction* of the Letters demands the Writer's Attention; because in the neat Performance of this consists one of the greatest Beauties of the Hand. One Stroke should not *cover* another in the least Degree, but, as two Pieces of polished Marble in an elegant Structure, they should approach to and touch each other. And if the Pen be not *acute* at the Edges of the Nib, whenever the Letters join, the coarse and blotted *Attachment* of

\* Such as the *P*, *f*, *p*, &c.

† By this Term I would have the Reader to understand that Side of the Nib, which, as the Pen is writing, is towards the left-Hand.

the Strokes will betray the Writer's Error and spoil his Performance. The Characters must likewise be easy and smooth, for *Roughness* expresses the Unskilfulness of the Penman, and spoils the best designed Character that the Fingers can describe.

A thinner Width of Stroke, in proportion to the Height of the Letters, should be allowed, than in any other of the black Hands ; the Width also between every Letter is less, scarce exceeding the Thickness of the Strokes themselves. The Height of the Capitals and other tall Letters should, as almost in every other Hand, be as much again as the inferior common Letters, only excepting (as in the *Chancery Hand*) the *a*, *s*, and *t*, which are a Mean betwixt the Height of the Capitals, &c. and of the small Letters.

This Hand, and indeed all the *Engrossing Hands* are practised without any *Punctuation*. The Lawyers are sure, by this Method, of never *running the Risque* or Danger of false Pointing, nor of suffering in consequence as the poor Prelate who lost his Bishoprick by the misplacing of a Comma. Perhaps, the numberless Repetitions make Points unnecessary, as they are certainly free from Ambiguities, arising from the Use of them, and must necessarily *stop* when they can read no farther.

There is another black Hand, the CHURCH TEXT, about which, as it is now quite obsolete, I shall not trouble the Reader, especially since many Directions, already given will serve. And it would indeed be but of little Use to treat precisely of this Hand, because if the Reader be Master of *all* the preceding Forms, he will *easily* overcome *this* ; and till he be Master of *them*, this will be neither of *Use* nor *Ornament* to him.

## C H A P. VIII.

## THE ROMAN CHARACTERS.

**I**T is generally acknowledged, that the *Latins* learned the *Use* and *Form* of expressing Words by Characters from *Greece*, from whence also, in a few Ages after, the *Muses* translated their Seat to *Rome* \*. *Simonides*, *Evander*, and *Demaratus*, are supposed to have brought Letters into *Italy* very early; to which probably, in process of Time, others were added, suitable to the Genius of the then improving Language. For the F, G, H, K †, Q, X, Y, Z ‡, were antiently unknown to the *Romans*, though afterwards, by the Addition of new or foreign Words, they became essential; and, in the *Augustan* Age, when the Standard of the *Latin* Tongue was fixed, we find most of the above Letters as much in use as any. § Each Letter originally was confined to express one particular Sound, and therefore the C, upon all Occasions, serves instead of the K, &c. but now, for Instance, in our modern

\* See *Croker's Dict. of Arts &c. Letter.*

† The K is but seldom found in *Latin*; it was used chiefly as an Abbreviation for *Kalendæ* or *Calendæ*, *Castra*, &c.

‡ Dr. *Morton*, in his curious Table of Alphabets, derives the *Latin* from the *Ionian* Characters, excepting these five Letters, Q, V, X, Y, Z, A. D. 714.

§ Thus *Virgil*,

— atque agmina jungit ;

*Quælis, ubi hibernar Lyciam, Xanthique fluenta.*

And *Horace*,

*Nam Zephyris agitata Tempe,*

modern *English*, some Letters are almost arbitrary\*, and in consequence such a Confusion is introduced, that *Foreigners* have some Reason to complain of the Difficulty in learning it.

The Characters, as used by the *Romans*, were for the most part rude, as may be seen by their Engravings in Stone, their Coins, &c. which have been preserved to our Day; but the *Moderns*, prone to add, have given them a more polished Appearance, retaining however the original Form, excepting in our printed Latin Books, into which they have thrust the Letter U, unknown to the *Romans*.

Of late Years, this Character has been generally used in printing Books, &c. is useful to be known by those who have occasion to mark Goods, &c. and necessary to be attained, *elegantia summâ*, by others who, either in Profession, or for Pleasure, would distinguish themselves by their Penmanship.

I would, before any Directions be laid down, only suggest a Word to the Reader on the Choice of Examples to copy after. Not every Letter daubed upon a Sign-Post, nor every Performance of the Pen, would I propose either to others or myself for a Model. It is very easy to add what some may suppose Beauties, or take away what others may imagine Defects from any Hand; yet it is difficult exactly to describe and masterly to perform with the Pen the Peculiarities and proper

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\* I need only Instance our *a* which has a great Variety of Sounds; sometimes it is *long* as in *call all*, &c. sometimes *short* as in *rascal, attach*, &c. sounds like an *e*, as in *Day, Nation*, &c. scarce of any Sound, as in *Reading, Compleat*, &c. and often accented *long* and *short* in the same Word, as *advānce, cālcūlate, vāgrānt*, &c.

per Distinctions of the most easy Set of Characters. It is not for *us* to strike out new Paths, but to excell in the old ; and that we can only do by a nice and critical Observation of them. He is more an Artist, in my Opinion, who executes any Hand, whether antient or modern, according to its known Proportions, than he who rambles without Design, or follows the wayward Bent of his own Fancy. I scarce think that a Learner can exemplify from any Thing better or more original, than the celebrated types of *Baskerville* or *Caston* ; but if the Writer please rather to copy from some celebrated *Engraving*, let him well attend to its Proportion. The latter may possibly mislead him, the former cannot.

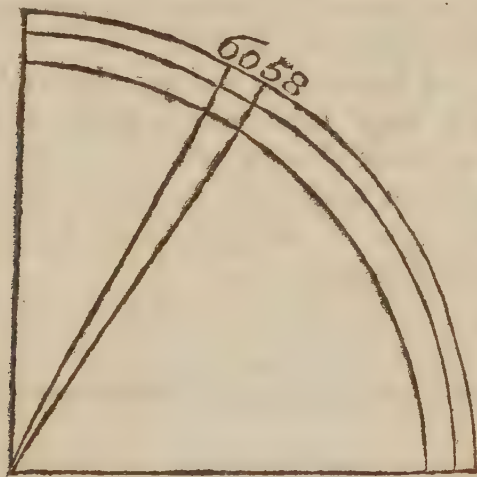
As the Characters originally were, like their antient Patrons, strong and masculine, we must, in Writing, make use of a Pen exactly squared at the Nib to describe the full Strokes. There should be but little Spring, and therefore the Shoulders of the Pen may be rather short than long, since the Thickness of the Stroke is performed by the Width of the Nib, with no great Pressure of the Fingers, which must be firmly and steadily moved, lest the Strokes be of unequal Breadth, or their Edges rough and uneven. The Paper should be laid exactly straight upon the Desk, and the Elbow drawn nearer to the Body than in writing some former Hands. This, if aught can, will conduce to the writing it *erect*, which is its proper Position. In the next place, we must aim at equal Distance and Height, without which our Assemblage of Letters, will have deserved what *Cicero* says of Chaos—*nulli sua forma manebat*.

The Height of the Capitals, and the other tall Letters, should be neither more nor less than double the Height of the small ones. There is scarce any Hand but *this Proportion* might be laid down as a Rule

Rule in it; for if it be allowed larger, the Capitals would take up too much Room and appear too bulky, as well as extend the Distance betwixt Line and Line too far; and, if the Height be less, the Inconvenience arising would be, Capitals too diminutive, and a disagreeable Closeness of the Lines.

As the ITALIC PRINT borrows its Form entirely from this, though it has assumed a different Slope, I consider it in this Chapter.

The Hand itself has a Declination towards the Right, like the *Round-Hand*, &c. which should be 58 or 60 Degrees upon the Line of Chords, as, for Example,



the former of these Slopes, (*viz.* 58) I would prefer for *this Hand*, as I would the latter for the *Round*. Care must be taken to preserve every Letter and every Line, of the same Slope or Declination throughout the whole Piece, or, however the Letters may be otherwise performed, this Inaccuracy will utterly spoil it.

The Thickness of the Letters themselves should be rather less than that of the *Roman*, and the Pen consequently less broad at the Nib. The Arm, since many of the Letters have oblique Strokes from

from the upper Line to the Left \*, might be held nearer to the Side of the Writer, than in the other sloping Hands, in which nothing of this Kind occurs.

The small Letters, though distinct like the *Roman*, have very different Beginnings and Endings; for as the former begin and terminate with Strokes parallel to the horizontal Lines, the latter, in most Letters, draw a fine Stroke, more acute in the turning than the *Round Hand* in the Beginning of Letters, and finish with another fine Stroke, equally acute, ascending a very little way from the Line. But, the former Stroke of the *h*, of the *k*, the two first of the *m*, the former of the *n*, and the Bottom of the *r*, stand upon the bottom Line, as in the *Round-Hand*, with nothing more than the *flat* resting of the Pen.

From good Examples and by due Attention, the Penman may soon accomplish a tolerable Execution of these Hands, which, in the Course of Life, will, if not useful, be no Harm or Injury to know both how to describe with Elegance and execute with Propriety.

## C H A P.

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\* The Strokes, here hinted at, are the *last* Stroke of the *K*, the *second* of the *M*, the *second* of the *N*, the *first* Branch of the *V*, and the *thick* Stroke of the *X*. To these add the *former* Branches of the *x* and *y*.

## C H A P. IX.

## THE GREEK CHARACTERS.

**A**S the Characters of this Hand preserve to us one of the most copious and elegant Languages \* ever known in the World, they merit our particular Attention ; and, though it may not be necessary for the *Learned* to be very particular in the Proportion or Beauties of the Symbols of any Language, yet it is highly proper that *he*, who would be a good Penman, or would instruct others, should not only understand the Difference betwixt one Character and another, but also the *best Method* of writing them, and their Respect to each other.

It may not be improper to treat of these Characters more at large, and therefore I shall set them down in order, as they stand in the common Greek Grammar.

E

GREEK

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\* If the Reader would see an elegant Description of this noble Language, I would refer him to the excellent HERMES of JAMES HARRIS, Esq; p. 418, 2d Edit. 1765, which the learned Dr. LOWTH justly styles, *the most beautiful and perfect Example of Analysis that has been exhibited since the Days of Aristotle.*

## GREEK CHARACTERS.

<i>Shape.</i>	<i>Name.</i>	<i>Power.</i>
A α	Alpha	a
B β β	Beta	b
Γ γ γ	Gamma	g
Δ δ	Delta	d
E ε	Epsilon	ě short
Z ζ ζ	Zeta	z
H η	Eta	ē long
Θ θ θ	Theta	th
I ι	Iota	i
K κ	Kappa	k c
Λ λ	Lambda	l
M μ	Mu or My	m
N ν	Nu or Ny	n
Ξ ξ	Xi	x
O ο	Omicron	ō little or short.
Π π π	Pi	p
Ρ ρ ρ	Ro	r
Σ σ σ σ	Sigma	f
Τ τ τ	Tau	t
Υ υ	Upsilon	u
Φ φ	Phi	ph
Χ χ	Chi	ch
Ψ ψ	Psi	ps
Ω ω	Omega	ō great or long.

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\* There is a very great Difference in the Form of Greek Characters among the MSS; but, as it would be impossible (if one were ever so well acquainted with them) to prescribe Rules for all these Variations, so it would be unnecessary for the mere *Penman*, since these here set down are now in established Use, which it is his Business to understand, as the others are the Subject of a more learned Investigation.

As to the *Contractions*, of which there are many, they will be easily learned when the Penman hath acquired an handsome Formation of the Letters, which shall be our next Subject.

A.  $\alpha$ .

This is supposed to be derived from the *Chaldee* ALPHA \*, as that is from the *Hebrew* ALEPH; and has its Capital made as the *Roman* A, the Pen being held in the same Position.

The small  $\alpha$  is originally formed from the capital Letter  $\dagger$ . To make it, and indeed all the small Letters, the Pen should be turned to the Hollow of the Hand, and the Writer's Arm (as in Engrossing) be laid a considerable Distance from his Body, on the Table or Desk. To write it *elegantly*, let the Pen, in the above Position, form an *o*, so that its chief Thickness be on the lower Side of the Oval next to the Right-Hand, and on the upper Part towards the Left, to which must be affixed another Stroke, in its Descent *fine*, but in turning up, of the same Thickness with the strongest Part of the Oval, and terminating (if I may use the Expression) in a blunt Point. But to write it expeditiously, the Pen hath but one simple Operation, making a descending *fine* Stroke with its left Edge, and turning round till it cross that with another, made by the full Nib. Nothing can be more simple or quick, as the Writer will experience by Use  $\ddagger$ .

E 2

B  $\beta$ . C.

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\* See G. PAS. LEX. in literâ A, &c.

$\dagger$  If we look narrowly into the Characters, we may easily perceive that the *lesser* were taken from the *greater* Letters, and received their present Form from *Expedition*. To this may be attributed the many Ligaments which are so perplexing and seem so obscure to those, who are not acquainted with the Characters or Language.

$\ddagger$  For this Method of expeditiously writing the Greek Characters, the Author is chiefly indebted to

This Letter is received from the *Chaldee Betha*, and that from the *Hebrew Beth*, which, in that Language, signifies *an House* \*.

The capital Letter is performed as the Roman, though generally allowed a finer Proportion in respect of Thickness.

The small Letters are best described, when the Hand and Pen are held as above directed, beginning from the Bottom of each, and making the long ascending Stroke fine; but, when the Pen performs the round Strokes of either, their upper Sides, in consequence of the Writer's Position, will be properly thick and agreeable to the Genius of the Character, which, unlike to all the modern European Hands that I have seen, requires a Thickness in most, if not all its horizontal Strokes.

## Γ. γ. Γ.

GAMMA is the Third of the antient † Greek Letters, and is probably derived from the same Spring

a very learned and valuable Friend, whose Labours in the Cause of Literature, and particularly in the Greek Language, carry their best Encomiums with them.

\* Dicitur βῆτα——à Chaldeo ΒΕΤΗΛ, Hebræorum verò litera BETH sic dicta fuit, quod figura sua imitetur domum Pa'æsthinam, ubi linea summa tectum, ima pavimentum, media parietem, vacuitas e regione januam refert. Sonus ejus colligi potest ex ovium balatu, ut docet locus Cratini, qui ita habet, ὁ δ' ἑλίδι ♂ ὠσπερ ἀρόγατον βῆ βῆ λέγων βαδίζει, i. e. isle fatuus perinde ac ovis BE dicens incedit. G. PAS. LEX. in βῆτα.

† I call it *antient*, because of the Additions afterwards made to the Greek Alphabet. Aristotle, as quoted by Pliny in *Nat. Hist. Lib. VII. Cap. 56.* reckons

Spring as the preceding Letters. Some however are of opinion, that the *Gamma* has been *Gimma* from the *Arabic* גִּמְ Gim; but, allowing this, we may even suppose that the *Arabic* Character as to Sound, (as well as Language\*) may be borrowed from the *Chaldee* or *Hebrew* גִּמְל.

In our common Alphabets †, Γ *Gamma* Capital appears like the Roman T, the Branch on the left Hand being taken away, and must be described accordingly.

The smaller *Gamma*, in making it, should descend with a fine Stroke, and ascend with a strong one, which the Pen will naturally execute, if held in the proper Position.

The γ, often used especially when subsequent to the ς, as in ἐγς ἄφω and before the κ as in ἐσκολλέειν; &c. is written from the Bottom, ascending *fine* and terminating *full*.

Δ. δ.

reckons the *Gamma* among the first Characters used by the Greeks.

\* Dr. *Sharpe*, in the Preface to his *Hebrew Dissertations*, advises that, *because they are the Sources of all the Oriental Languages*, (and in particular mentions the *Arabic*) the *Chaldee* and *Hebrew* should be the first Subjects of our Study; and informs us, that the learned *Faber* and the more learned *Cusaubon*, had their Sons early instructed in the *Hebrew*, that they might have a more perfect Knowledge of the *Greek Tongue*, *the greatest part of which* is most evidently derived from the *Oriental Dialects*. See also D. Grey, *Pæf. in Alb. Schult. lat. vers. libr. Jobi*.

† The word *Alphabet*, used to express a Set of Characters of any Kind, is so called from the Conjunction of the two first Letters of the Greeks, ἀλφαβῆτα, agreeably to the Manner of the antient Writers, who titled their Books from the first or two first Words, as the Book of *Genesis* is called בְּרֵאשִׁית *Berashith*, because it so begins, &c.

πρὸς τὸν ποταμὸν Δ. δ. ὅτι ἄρα ἐκ τούτου

This Letter, not much unlike in Shape to the Islands of the same Name, formed by the Mouth of the River *Nile*, is borrowed, perhaps, from the Hebrew  $\daleth$  *Daleth* (I mean as to its Sound) or *Daletha*, converting the *S* or *th* into a  $\tau$  or *t*, and omitting the *e* or *e* by the Figure Syncope \*.

I apprehend, the best way of forming the Capital will be to ascend from the lower Line to the Point, from whence the thick descending Stroke should be made to the same Line again, but at such a Distance from the Beginning of the fine Stroke as the Length of that Stroke; and then, with the Pen to form the Bottom or horizontal Stroke so as to join the other two. When this Letter is rightly performed, it will constitute what Geometricians call an *acute* or *equi-lateral* Triangle, one of whose Strokes is fine, the other two thick, proportionable to their Height, but all of them smooth, strait, and regular.

In forming the small  $\delta$ , one needs not to advise more than to follow the Position of Body, Hand, and Pen, already given.

E. ε.

It is called  $\epsilon$  *Ψιλόν* because it is τὸ ῥαῦμμα *Ψιλόν*, the short Letter of that Name, in contradistinction to the  $\eta$  or long  $\bar{\epsilon}$ .

The Capital Letter is formed as the Roman Capital of the same Name; and the small  $\epsilon$ , by  
two

\* The antient Memorandum-Books were called  $\Delta\lambda\tau\omicron\iota$  by the Greeks, because, it is said, they folded together in the Form of this Letter. By the Romans they were named *pugillares*, for the same Reason, perhaps, that we have for calling any Instrument, &c. *handy*, as an *handy* knife, an *handy* Man, &c. by which is implied either their being useful, or well adapted to some Purpose.

two Turnings of the Pen, making the Thickness as the Pen itself will incline to, if held in the proper Position.

Z. ζ. ζ.

At first Sight, we may conclude this Letter by the Greeks to be received from the ז of the Hebrews, to which also it is similar in Sound. The ζ probably may be derived from the final γ, on account of its descending Length.

The Capital is formed like the Roman Z. The small Letter is begun, at the Top, with a thick Stroke, and, when the Curve or Bending is performed, (as in a good Example may be seen) should conclude fine.

H. η.

*Simonides Melicus* is said to have brought this and the preceding Letter into Greece, as also the Ψ and Ω; and in Power it is *long*.

The Roman H is a proper Type for its Capital, observing only a less robust Proportion. The η, holding the Pen as above, is written almost like the η of the *Round Hand*.

O. ο. θ.

During the famous Trojan War, *Palamedes* added this Letter together with the Ξ, Θ, and Χ to the Greek Alphabet. It seems to be taken from the Hebrew ו inverting the Sound, and adding the Chaldee or Greek Termination of *a* \*.

After the Writer has described an O, like that of the Romans, the *inner* Stroke must be drawn, parallel

\* The Θ was formerly the condemnatory Letter among the Greeks, because it began the Word Θάνατος *Death*, (whence *θανάτω πόσιν dare letbo*) afterwards among the Latins, C for *condemno*. *Perfius* alludes to this when he says,

*Et potis es vitio nigrum præfigere THETA.*  
*Pas. Lex. ο, and Godw. Rom. Hist. lib. III. § 4.*

parallel to the horixontal Line, almost across the Center, and, with the Edge of the Pen, (in correct Writing) should be bounded by two small fine Strokes. The *Iota* is begun at the Bottom, which with its correspondent *theta*, needs little Explanation.

I. ι.

The *Iota* is received from the Hebrew *Jod* or *Yod*, which, some observe, signifies *Space*, because whenever it occurs it leaves, being a diminutive Letter, a kind of *Space* in the Word, as in שני'ים.

Its Construction is so simple, that it is unnecessary to say any thing about the Manner of writing it.

K. κ.

The *Kappa*, from the Hebrew *Caph*, has its Capital like the Roman K ; but the small Letter is made, the Pen being as before directed, with a fine Stroke descending to the Line, from which a thicker ascends, formed almost with the full Nib ; and another descending Stroke, crossing the thicker one, and terminated by the full Nib, completes the Letter.

In writing it *expeditiously* we may be at less Trouble, only making it like the Bottom of the k.

Λ. λ.

*Lambda*, from the Hebrew *Lamed*, is formed like the capital *Alpha* or the *Delta*, omitting the *transverse* Stroke of the one, and the *Base* of the other. Its derivative small Letter needs no other Directions than those that have been given for writing some former Characters.

M. μ.

N. ν.

The Construction of these Characters is so easy, that I shall not trouble the Reader with any Directions for them.

The

The one is borrowed from the *Mem*, and the other from the *Nun* of the Hebrew.

Ξ. ξ.

The *Xi* receives, as is supposed \*, its Origin from the Hebrew *Shin*, and is nearly related to the  $\chi$  and  $\sigma$ , into which it is sometimes resolved, and *vice versâ*, as in the Attic Dialect,  $\xi\upsilon\nu$  instead of  $\sigma\upsilon\nu$ .

As to its Form, the Capital consists of three parallel horizontal Strokes, the upper and under of which exceed the intermediate one in Length, at least by one Third. They are all of equal Thickness, and terminated by oblique fine Strokes drawn by the Edge of the Pen.

Young Learners, it is observed, are more perplexed about the proper making of this Letter than of half the Alphabet besides, though it is nothing more than the three Strokes of its Capital,  $\Xi$  joined by other fine Strokes, only, for Convenience, made crooked. An Ingenious and Reverend Gentleman, in order to fix it upon the Learner's Memory, proposed the making of three c's each beneath the other descending and reverting the last, as may be seen in Examples.

O. o.

The *Omicron*, or *small o*, needs no other Directions than some already given.

Π. ω. π.

The  $\Pi$ , as to Sound, seems to be taken from the Hebrew  $\Pi$  or its final  $\eta$ , which also because of its Resemblance, (as 'tis fancied) to a Man's Face, or Mouth, is taken from the word in Hebrew which signifies a *Face*.

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\* G. Pas. Lex. ξ.

P. ϑ. ρ.

From the Hebrew *Resh*.

There is no Difficulty in these Letters to require any direction for writing them.

Σ. Ϛ. σ. ϛ.\*

From the Hebrew *Shin* or *Samech*.

The σ I would propose to begin in writing, not as in common, from the upper Part, but the contrary †.

Τ. τ. 7.

The *Tau* receives its Name from the *last* Letter of the Hebrew Alphabet. The Character is very simple, and therefore requires no Direction. The various Forms of the same Letter are purely designed for *Elegance*, thus τέρτα looks better than when it is written τέττα; also απίω is preferable to απτω; ἐγςυ to ἐγγυ; &c.

Υ. υ.

The *Upsilon*, because so easy in Form, I shall pass over.

Φ. φ.

The *Phi* consists of an O and a thick descending Stroke, passing *exactly* through it, and must be formed as the I and O of the *Roman* Hand.

The

\* P A S O R says, that the *Sigma* (meaning the ϛ)  
 “ *diēta fuit litera serpentina à sibillo serpentis, imo etiam*  
 “ *ab externa forma. Figura enim hujus literæ in om-*  
 “ *nibus linguis formam serpentis refert. Vide LEX. Σ.*

† In writing Greek, it may not be improper to remind the *Penman* that the σ is only used in the *Middle*, and the ϛ only at the *End* of a Word. In *Printing* we find the ϛ, as the Greek σ, used in the *Middle*, and the σ, at the *End* of Words, though very few attend to that Accuracy in *writing* English, &c.

The  $\phi$  is made like its Capital, only with this Difference, that as the I passes above and beneath the O, and is bounded by a fine Stroke at each Extremity in the Capital, the small Letter is formed only by one Motion of the Pen, the descending Stroke being made finer than the other, and terminating in a Point.

X.  $\chi$ .

The *Septuagint* Version of the Bible has all along, in the proper Names, expressed the Hebrew guttural Letter  $\chi$  *Cheth* by this Letter, as  $\rho\alpha\chi\alpha\epsilon$  for  $\rho\chi\eta$ . Some say that *Epicharmus*, others that *Palamedes* inserted this Letter into the Greek Alphabet.

The Capital is formed like the Roman X, and the small Letter is written by first making the straight Stroke, which, if the Pen be rightly held, will be somewhat thick, and then forming its Transverse (a little like an *s* inverted) so that in crossing the former Stroke it be fine; for every kind of Hand or Mode of Writing, and even *Command of Hand*, will not admit of two gross Strokes to be drawn athwart each other. If it should happen so, whether by Accident or Design, an Eye, not very critical, would discern the ill Effect or Impropriety.

 $\Psi$ .  $\psi$ .

This, as well as the subsequent Letter, is ascribed to *Simonides Melicus* by *Pliny*, and is a Substitute for  $\beta\varsigma$ ,  $\pi\varsigma$ , or  $\phi\varsigma$ .

The most facile Method of making the Capital is to draw the main Stroke, like the Roman I, and then to intersect it, as may be seen in the Example, leaving, as near as possible, the Branches equal on one Side to the other.

Its small Letter is made only with a different Position of the Hand and Pen.

Ω. ω. *the Greek Letters*

This, in Shape (especially in the small Letter) as well as in Sound, seems to be taken from two *Omicrons*, thus instead of  $\sigma\omicron\zeta\omicron$  the Greeks, by joining the *Omicrons*, have composed the *Omega*, writing  $\sigma\omega\zeta\omega$  \*.

After the Directions already given, it would be unnecessary to say any thing about the Construction of the Character *Omega*.

Having treated of the Characters distinctly, it is not my present Design to enter upon making any Observations upon their various and complicated Abbreviations. After the common Letters are acquired, by a little Observation, *these* may be written with Facility. Some Greek Books indeed of a late Publication seem to have rejected all Ligaments, and to have expressed every Word by distinct and separate Letters; but the Learned must be Judges whether such a Practice is to be wished for, since (as the eminent *Fabricius* somewhere observes) it may render the antient Greek Books, where Breviatures are exemplified almost in every Word, obscure and difficult to Posterity.

To write *Greek* either *elegantly* as a Penman, or *expeditiously* as a Scholar, Reason will assure us we must often practise. To the *former* might be recommended the best Examples either of the Pen, or printed Books; while to the *latter*, I would here suggest a Method (calculated at once to improve the Knowledge of the Language and Expertness in the *Character*) published to the World by the Rev. Mr. MERRICK, in a *Letter to the Rev. Mr. Jos. WARTON*, and in *Annotations Critical and Gram-*

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\* The Greeks, as well in the Conjunction of Words as of Letters, had a manifest Advantage, which I suppose, not a little rendered their Language so *copious* and *elegant*.

*Grammatical on St. John's Gospel*, to which I refer him, and in which he will find sufficient Evidence for its Utility\*.

The *Accents* are so easy, that the Reader needs not to be directed about them, when he has attained the Characters. It may be necessary however to say a Word or two about the *Points* or *Stops*, which arrange Words into Clauses, Sentences, &c. The *Comma*, as in English, is placed at the Bottom of the last Letter in the Word, as in *ῥόσ*, and it also serves instead of the *Semi-colon*†; used by the Latins and Moderns. The *Colon* is placed as in *ἀγῶτες*. The *Period* as in *ἰός*. And the *Note of Interrogation* as in *τίς*; &c.

Before I conclude this Section, I would observe that the Greeks received the Use of Letters from the Phœnicians ‡ by means of CADMUS §, and that the Characters, having undergone many and various Mutations, are reduced to the Form in which we now use them.

## CH A P. IV.

### THE HEBREW CHARACTERS.

THE modern Hebrew Characters are greatly deviated from those originally used in the *Pentateuch*; but the present Form has certainly

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\* Printed in 1764, and sold by *Newbery*, &c.

† The *Comma* is used by *Apostrophe* as *Καὶ αὐτὸν* for *Καὶ αὐτόν*, &c.

‡ *Gens Phœnicum in gloria magna LITERARUM inventionis et siderum, navaliumque ac bellicarum artium.* *Plin. Nat. Hist. Lib. V. Cap. 12.*

§ *Cadmus the Son of Agenor. See Ovid. Metam. Lib. III. Fab. I. Hor. de Arte Poet. lin. 187, &c.*

no despicable Appearance. The *Rabbins* (at least the *modern Rabbins*) write the Characters much stronger than the *learned Christians*, and a Piece of that Kind, well executed, has a good Effect; but notwithstanding, a Piece performed nearer to the Proportion of some of our best printed Books is, I think, preferable in point of Neatness and Elegance.

There is no Division of the Hebrew Characters into capital and small Letters, as in the European Languages, but a noble Uniformity runs throughout every Word, and throughout every Page of the same Book.

I subjoin the Alphabet, and shall suggest some few Hints to the Penman for writing it.

The

## The Common HEBREW CHARACTERS.

Shape.	Name.	Power,
א	Aleph	a, as in <i>shall</i> -
ב	Beth	b, sometimes like v.
ג	Gimel	g, as in <i>good</i>
ד	Daleth	d
ה	He	e
ו	Vau	v or u
ז	Zain	z
ח	Cheth	ch, h, or like $\chi$
ט	Teth	t
י	Jod or Yod	i or j
כ	Caph	k, or c in <i>call</i>
ל	Lamed	l
מ	Mem	m
נ	Nun	n
ס	Samech	s
ע*	Oin, Ain, or Gnain.	o, gn, or ng. †
פ	Pe	p, or ph. $\phi$
צ	Tzaddi	tz
ק	Koph or Quoph	k or q
ר	Resh	r
ש	Shin or Sin ‡	sh or sc, or like $\sigma\chi$
ת	Tau or Thau	th, or $\eth$ .

Add

\* “ *Sonum habet talem (ut Syrus Grammaticus ait) qualem vitulus edit, absente matre.*” Bythner. Anal. Psalm. Appendix I.

† “ Though Sound in general might, with philosophical Propriety, be denominated from the Root *ע*, because it *breaks the Order of the Air*, (for what is all Sound but a *peculiar Vibration* thereof ?) yet as this Word is appropriated to signify *loud* or *shrill Sounds*, I submit it to the Reader’s judgment,

Add to these the Five *final* Letters ך ם ן ף ץ so called because they are never written but at the *End of Words*.

Let the Writer, in learning this Hand, well attend to the proper Distinction of every Letter, because of the great Likeness which some Letters have to others, as the כ to the ב, the ז to the ג, the ד to the ך and ר, the ה to the ן and ת; the ן to the ן ן; the ט to the ס ם; the ם to the ם and ם, the ץ to the ץ ץ, &c.

The Hebrews, and other Asiatics, always write from Right to Left, contrary to the Method and Practice of the Western Nations; therefore, in writing these Characters, the Penman should begin in the same Manner.

The ascending Letter ל should be carried near or quite double the Height of the other Letters, which are equal, as the descending Letters ך, ן, ף, and ץ should below, the ץ must be excepted however, which descends but just beneath the Line. In

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“ whether they are so applied by an *Onomatopœia*  
 “ as *ring, clang, tingle, tink*, in English. And though  
 “ it is pretty certain that the Heb. ץ *Oin* had antiently  
 “ the Power of a Vowel, namely that of *o* long or  
 “ of the Greek *ω*, yet I make little Doubt but it had  
 “ also frequently somewhat of a *nasal* Sound, an ob-  
 “ scure *n*, or *ng*, being included in it, like the French  
 “ *on*, and thus the Heb, ריע would be very nearly as  
 “ the English *ring*, and רע as *wrong*.”

Again,

“ ערור (Chald. ערריא) *The wild Ass* is so called by  
 “ an *Onomatopœia* from his *harsh, disagreeable Braying*,  
 “ expressed in Latin by *Ruditus*, a Word likewise  
 “ formed from the Sound.” See *Parkb. H.b. Lex.*  
 “ on the above Words, and *Bochart*, Vol. II. p. 869,  
 cited by him.

‡ “ *Litera װ (Sin) irreptitia est, non originalis, partim*  
 “ *ex prava prolatione ט װ (Shin) nata, partim pro ם*  
 “ *(Samech) posita.*” *Buxt. Heb. Gram.* p. 6.

In writing let the Hand be kept in the same Position as was assigned in the Greek, (see last Section) with the Pen turned considerably into the Hollow of the Hand, because almost all the thick Strokes are *horizontal*, which the Pen could not properly execute, in another Position. The Paper, or whatever else is employed, should be placed exactly straight before the Penman, as for all other erect and perpendicular Characters. The Jewish Penmen [and indeed the Monks formerly in all MSS of the Old English Text, &c.] rule Lines on their Parchment, Vellum, &c. between which, neither touching the upper or lower Line, they decyphered the Letters. To the (as yet) unskilful Writer I would however recommend Lines, ruled for the exact Height of the Letters lest he should not be able to preserve the Characters, throughout every Line, in due Respect and Magnitude to each other.

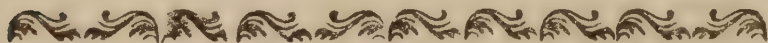
The Pen should be made, at the Nib, exactly *square*, with the Corners properly sharp, that the Letters may not only be executed without any Asperity or Irregularity of Stroke, but also, and in some particular Letters especially, that they may terminate with an acute-angled Square, as in the כ, ב, &c.

Hebrew Words must *never be divided*, as in Greek and other European Languages; but the Writer, to fill up the Line if there be a Deficiency, must cast his Eye on the Remainder of his Line, and lengthen or curtail the proper Letters, as the Space may require. Some of the *final* and other Letters will admit of great Extension as מ, נ, ל, כ, and ת, which very well substitute the use of *Hyphens*, or other Divisions and Contractions.

As to the Points, it will be quite sufficient only to *name* them, since the Facility of expressing their *Figure* renders all Directions needless \*.

The *Ligament*, which is used sometimes either to connect Words of different Significations, but which are generally the Adjectives to their Substantives, (as in כל-אדם 1 *every*-2 *Man*) or to distinguish the Radix from its Prefix or Affix, (as ויטפתי 1 *and*-3 *my*-2 *Book*) should not exceed the Breadth of the Letters, nor be allowed to occupy a Space much less. But this may vary a little, according as the Writer has occasion for Room in the Line.

Thus we have considered the most useful Hands extant, together with many Suggestions for the proper Expressing of their respective Characters. There yet remain some few Hints to the Penman, which are offered, in the subsequent Section, as necessary Appendages to the ART OF GOOD WRITING.



## CH A P. XI.

### OF FIGURES, ABBREVIATIONS, &c.

#### SECT. I. FIGURES.

THE Figures, or numerical Characters, are originally from the *Arabic*, and are used, instead (as the antient Practice was †) of the other Letters

\* The Reader may see their various Form and Use exemplified in *Buxtorf's Latin-Hebrew*, and in *Lyon's English Hebrew Grammar*.

† The *Romans*, *Greeks*, *Hebrews*, and all the Oriental Nations, expressed their *Quantities* by Letters of their

Letters, to convey Ideas of Number, &c. and that in the most concise and easy Manner.

Of these we have *ten*, by which alone we can express, without exceeding that Number in Arrangement, no less than THREE MILLIONS, TWO HUNDRED AND SIXTY-FIVE THOUSANDS, NINE HUNDRED AND TWENTY Numbers of different Value or Quantity.

1, 2, 3, 4, 5, 6, 7, 8, 9, 0.

With regard to the proper Shape of these Characters, as there is but little Difficulty in it, I would refer the Reader to some good Example. It is only necessary to mention that, in using them amongst Words, which in the Transaction of Business cannot be avoided, they should exceed almost or quite double the Height of the common Letters, so that they may be conspicuous. This will be the *Interest* of those who use them, because of the avoiding all *Ambiguities*, as well as preserving the *Credit* of the Penman, who must study every Peculiarity and Propriety, if he aim at any Degree of Perfection in this Art; which his Subsistence or Inclination may engage him to profess.

Let me add here, for the sake of some Readers, who possibly may not be acquainted, notwithstanding they use them, with the Import of the *L*, *S*, and *D*, commonly superfix'd to Figures expressing *English Pounds*, *Shillings* and *Pence*, that they are only the initial Letters of the Latin Words *Libræ*, *Solidi*, *Denarii*, which signify (to

their respective Alphabets. How much more eligible our present Method is, may be seen by only supposing in an  $\alpha$  to omit the subjacent Mark, or by describing the present Date, 1766, in any of the above Characters.

(to us) that Value. Some add, in Arithmetic, *Qrs* for *Quadrantes*, Farthings; and perhaps the Reason for the Use of these *foreign* Initials arises from the *Pounds* and the *Pence*, in *English*, beginning with the like Letters. It is but of little Signification which are used, so that the Decypherer knows *why* he uses them.

## SECT. II. ABBREVIATIONS, &c.

As Abbreviations are necessarily used in Writing, it is therefore material to point out some Method for a right Inscription of those that are most in use \*.

The *Apostrophe* is a Comma set between two Letters to shew that one † is omitted, as in *convers'd* for *conversed* ‡, *Man's Hand* for *Manis Hand* §, and, in Poetry, *th'* for *the* when the subsequent

\* It would have been foreign to my Purpose to have treated of the great Variety of Abbreviations, used by the *Latin*, *Greek*, and *Rabbinical* Authors, as my design is only for the *modern Penman*.

† Sometimes a *Syllable*, as

*The Phantom of an Age 'twixt us and Death.* YOUNG.

‡ Twice in one Word, as,

*Heav'n's last best Gift.*

MILTON.

§ This Abbreviation of the Genitive Case, from the *Saxon* and old *English* Use, is often mistaken to be of the *Pronoun* *HIS*, so that *Man's Hand* must, in that Case, be a Contraction of *Man his Hand*. If we look back into Ages not very recent, we may see the *IS* a Termination of the Genitive Case, as for Instance in a Covenant of Truce with *Scotland*, 22 of *Rich. II.* 1398,—“in their *Kyngis* Name.” The *Apostrophe* I find used however in the Time of *Henry VI.* 1439.

—“The

sequent Word begins with a Vowel \*. It were endless to instance the Use of the Apostrophe, as 'tis for *it is*, *tho'* for *though*, &c. let it suffice, in our present Design, to assert its *Place* and *Form*, which should be above the Line, about the Height of the *t*, and its Tail descending to the Line or Height of the common Letters. Its greatest Thickness should not exceed that of the common small Strokes, and its Bending not too flat. Let the Pen perform it with Freedom, and give it, when finished, a proper Point.

We have often occasion to make use of the *Et cætera* (Eng. *and the rest*, or, *and so forth*) described thus, &c. It should be the Height of the taller Letters, and ought not to be written (as some People write it) with two *c*'s after the &, thus, &cc. †

The (?) *Note of Interrogation* seems to be derived from the *Q* and *Period* placed together to note a Question, for *Quære*, &c. thus *Q*. and in Process of Time to have dwindled into its present Form. This also should be the Height of the taller Letters, and be preserved in the same Slope or Inclination.

The

—“ The *Kyng's* said Ambassatours.”—“ and so because of Perdition noight only of *th'* innumerable Menne's Bodys that haan perished by *th'* Abuse of the Werre.” *Rym. Fæd. Tom. X.* See also the English Grammar attributed to Dr. *Lowth*, (now Lord Bishop of *Oxford*) in which this Matter is fully exemplified.

\* “ *Where th' Etrurian Shades.*” MILTON.

† Sometimes *two* &c. are used, very properly, to abbreviate many Titles of Honour, as *To her Imperial Majesty the Empress of all the Russias*, &c. &c. or *To the Right Honourable the Earl of D.* &c. &c. But, in common Use, *one* is esteemed sufficient.

The *interjective* or *exclamatory* Note, used to terminate Sentences of Admiration, Horror, &c. I have seen, in some antient Books, inverted thus j, which indeed to me seems at least equally proper to express the Tone of Voice, with which Sentences of that Kind should be concluded \*. However, the present Mode will serve, and must be of the same Height with the taller Letters, and of the same Slope with the Hand in which it is used.

To these might be added the *Obelisk*, the *Index*, and Abbreviations of some *particular Hands*; but it is perhaps impossible to inform the Reader, in these little Matters, to so much purpose by Words *alone* as by Example. To these therefore would I refer the Penman for a just Idea of *good Writing*, with all its Peculiarities and Appendages; while I would humbly offer this little Treatise, as a friendly Assistant, to point out, perhaps, some Things unnoticed by others, or unknown to him before.

### SECT. III. COMMAND OF HAND, OR STRIKING.

It is almost necessary, in treating of this Subject, to say something of what is now become, in the Eyes of many, an *essential Concomitant* of good

---

\* As the old Note of Exclamation *rises to a Point*, so the Voice, in pronouncing Interjections or Exclamations of Fear, Surprise, and in Emotions of the stronger Passions, *ascends and concludes sharply*, thus, when one cries, O Heav'n! or, as in Milton, "O *Visions ill foreseen!*" the Voice has no Cadence, as at the Period, but rises to a certain Degree, and breaks off abruptly.

good Writing. *Striking* has undoubtedly its Graces, nor should the Penman be satisfied without attaining a masterly Execution of it: Yet a Piece of good Penmanship is its own best Ornament. It will defy Criticism, without the borrowed Trappings of the fanciful Pen, and has native Beauty sufficient to charm, without Circumscriptions or Additions of any Kind. If indeed the Writer would conceal some Defects, being Master of his Hand and Pen, by *Striking* he may possibly accomplish his Purpose; and, to the Generality, may render his Piece an admirable Performance. In this Case the World judges as in many others. A laced Coat or fashionable Appearance, often strike the Vulgar with far more Attention than any other Consideration, however valuable. So, by the Injudicious, the whimsical Strokes of a luxuriant Pen may be preferred to the nice and exact Performance of the most consummate Artist. It is not my Design to depreciate a *Command of Hand*, but I would by no means have it put in competition with true Taste and just Design. Let the Penman use *them* with Judgment, and then they are, according to their original Design, *Ornaments*.

Our Use of these Embellishments, however they may please the Fancy, ought to be sparing and moderate. A Confusion, or excessive Complication, instead of adorning renders a Piece contemptible, however performed; because the chief End of it is lost, namely, *Perspicuity*. The Letters must be *conspicuous*, if we would view their Elegance; and the Ornament should be so disposed as to render them, as much as may be, *more conspicuous*. I have seen several Pieces of good Merit utterly spoiled by Intemperance of Ornament, and the beautiful Characters, like a Flower in a Bush, obscured and lost.

There

There are two Modes of *Striking*, which Penmen distinguish into the *Dutch* and *Italian* Commands of Hand. Either of these, *freely* and *justly* performed, have their peculiar Beauties.

To *Strike* or (as 'tis called) to *flourish* after the *Dutch* Manner, the Penman should keep his Arm quite detached from his Body, and capable of being *moved* or *swung about* at Pleasure, or otherwise his Striking will be stiff, and lose that *Freedom* which is its peculiar Grace. The Pen must be held in the same Position as in the *Round Hand*, only the two Fingers which, in writing, are held beneath for the Hand to rest upon, must be elevated a little, so that nothing may touch the Paper, Desk, &c. but the Point of the Pen. Every Stroke should be performed with an easy steady Motion of the *whole* Arm, not too fast or in Jirks, (as many do) because then, I am sure, the Eye has but little to do with the Work of the Hand; nor can the Flourishes have that *Boldness* and *Ease* in the Turnings, which are so essential to good Striking.

Two *thick* Strokes must never intersect each other, nor one Part of the Piece be *crowded* while another is almost *desitute*. Thick Strokes also ought not to abound in one Part more than another, nor too great a Profusion of Ornament (as I said before) in any Part. This is the Penman's Foible; at the Expence even of his best Pieces, he will display his Dexterity in Striking, and, instead of ornamenting, hide its principal Beauties.

Let the Paper be placed, as in writing the *Round Hand*, somewhat *aslant*, and especially if the Desk be *sloping*. Whatever *Hand* is ornamented, the Writer will in time perceive the Advantage of not suffering the thickest Strokes performed by Command of Hand to exceed those that are written; this Practice will have its Effect  
in

in Exhibition. As to the Pen, such an one that suits the *Running-hand* is esteemed the most proper, only the Nib must be somewhat elastic, occasioned by a Split pretty long and clear, that it may execute the thick and fine Strokes, in just Declension, by a suitable Spring.

In his first Attempts, the Penman should undertake those Kinds of Flourishes which are most simple; and, perhaps, the Striking of the capital Round-hand Letters, of a moderate Size, will be found useful for his Exercise. He will afterwards have an Opportunity of seeing various Examples of long Flourishes, I mean such as are performed with one Operation of the Pen, which might be recommended for his next Attainment. Last of all, the more complicated Kind of Ornament, such as what is used in the *German Text* and other strong Hands, remains an Object of his Pursuit. This will not be extremely difficult, when the Writer has acquired a confirmed Freedom in the other two; the chief Thing observable is the *Disposition* of the Strokes, which must be detached from, yet arranged with each other, so as to appear *easy* and *compact*. No bungling Turnlogs, no patching and mending ought to be seen, but the whole Piece should appear an uniform Performance of the Pen. If there should be, as indeed is often unavoidable, a Space of too great Extent for some other Parts, instead of making another Stroke unhand somely, a little Dot, or some other such Thing, will well supply its Place, and remedy the Inconvenience complained of. The Writer will see these Things, which may appear insignificant, in the Works of some late great Masters in the Art of Writing, and particularly in those of *Bland*, *Champion*, &c. whose elegant Performances the young Penman would do well often to lay before him.

In performing the *Italian Mode* of Striking, the Pen must be held so that the upper or ascending Strokes should be made thick, and the others fine. The Hollow therefore of the Pen must turn within the Hand, and the Elbow be a little more elevated than in striking after the *Dutch Manner*. With respect to any other Directions, the Reader may be referred to those given already, which excepting the Position of the Pen, equally serve both Modes of Striking. I would only observe, that both Modes may be often (as they indeed have been) successfully employed together in ornamenting large Pieces; but this must be done with great Skill and Caution, or the Consequence is the spoiling of the Performance and causing much Labour to be used in vain.

I have here subjoined four alphabetical Sets of Copies for young Learners, suited to the Texts of small Hands, two of which are *Latin*, intended for the Use of the Grammar-Boys.

T E X T

TEXT COPIES.

*Art embellishes Life.*

*Bounty procures Friends.*

*Custom pleases Fools.*

*Defame no Reputation.*

*Extravagance brings Want.*

*Fame rewards Merit.*

*Govern perverse Tempers.*

*Honour your Superiors.*

*Innocence is admired.*

*Joy succeeds Sorrow.*

*Keep good Company.*

*Learn useful Arts.*

*Malice is Meanness.*

*Never betray Secrets.*

*Observe good Manners.*

*Pursue useful Studies.*

*Questions foolish avoid.*

*Revere your Superiors.*

*Sincerity is valuable.*

*Trust no Strangers.*

*Understand*

*Understand your Profession.*

*Vice is contemptible.*

*Write with Correctness.*

*Xenophon the Greek.*

*Youth is unstable.*

*Zealots are unwise.*

## L A T I N T E X T C O P I E S.

*Amplifica rem ornando.*

*Beneficii accepti memento.*

*Comitas amicos parit.*

*Difficilia quæ honesta.*

*Ebrietatis come oblivio.*

*Fortuna simillima vento.*

*Gratia gratiam parit.*

*Humilitas tutissima est.*

*Ingenia puerorum varia.*

*Fucundum est discere.*

*Kalendæ non præteritæ.*

*Laus excitat ingenium.*

*Morte carent animæ.*

*Necessitati nihil repugnat.*

*Opes arte parantur.*

*Parva non contemnenda.*

*Quod utile, dulce.*

*Ratio paranda est.*

*Simile simili gaudet.*

*Tempore fiunt omnia.*

*Usu artes acquirendæ.*

*Vulgi judicium stultum.*

*Xenophontem docuit Socrates.*

*Zelus veritatis bonus.*

## LONGER COPIES FOR ROUND HAND, &c.

*Art is only hateful to the Ignorant.*

*Bounty is more commended than practised.*

*Covetousness is its own Tormentor.*

*Diligence supersedes many Difficulties.*

*Every Science is fraught with Use.*

*Few attain Praise without Endeavours.*

*Gratitude is pleasing to all Men.*

*Humility is one Degree to Exaltation.*

*Idleness is the Bane of youthful Years.*

*Judgment unbiassed denotes Wisdom.*

*Nothing is so much to be desired as to Know*

Know when to speak, and when to hold  
your Tongue.

*Luxury impoverishes Mind and Estate.*

*Misfortunes often make Men wise.*

*Noisy Ostentation is odious.*

*Omit no Means of doing Good to others.*

*Patience softens many Inconveniencies.*

*Quintilian was an accurate Judge of Men.*

*Recompence to no Man Evil for Evil.*

*Sincerity is preferable to Compliment.*

*Temperance contributes much to Health.*

*Ungrateful Men are always hated.*

*Vanity is the Parent of Impudence.*

*Wisdom is universal, though often hid.*

*Xerxes was fond of Pleasure, averse to Arms.*

*Youth is unsteady, old Age is infirm.*

*Zeal, as Fire, must know Confinement.*

## LATIN LONGER COPIES.

*Avarus aliis, non sibi divitias parat.*

*Bellua multorum capitum est vulgus.*

*Conscio mens recti famæ mendacia ridet.*

*Dulce et decorum est pro patriâ mori.*

*Extra fortunam est quicquid donatur egenis.*

*Ferina rabies est sanguine gaudere.*

*Geminat*

*Geminat peccati, quem delicti non pudet.*

*Homines hominum causâ generati sunt.*

*Infirmi est animi voluptas ultio.*

*Iusta gloria, fructus virtutis, non repudianda.*

*Luxuriant animi rebus plerisque secundis.*

*Menti veritatis luce nihil dulcius est.*

*Naturæ parum, cupiditati nihil satis est.*

*Omnes trahimur ad cognitionis cupiditatem.*

*Plato uno et octogesimo anno scribens mortuus est.*

*Quod naturæ satis est, homini non est.*

*Regia (crede mihi) res est succurere lapsos.*

*Stultitia est timore mortis mori.*

*Temeritas à sapientiâ diffidet multum.*

*Ut fragilis, glacies, interit ira morâ.*

*Vocare culpâ magnum est solatium.*

*Xantippe Socratis uxor iurgatrix.*

*Zoilus nominatus est Homeromastrix.*

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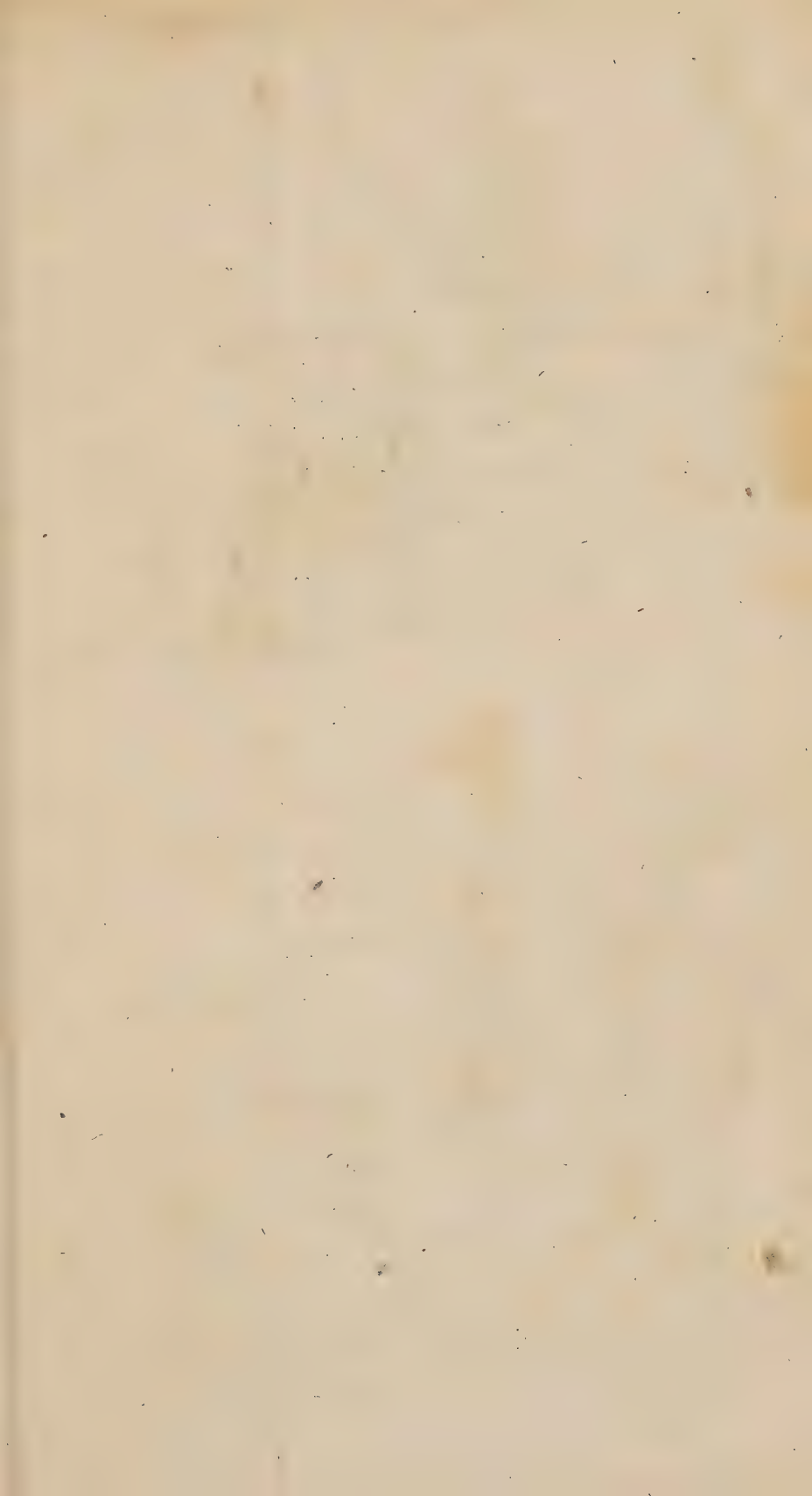
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THE  
ART  
OF  
DRAWING,  
AND

PAINTING in *Water-Colours*, &c.

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PART I.

*The Principles, &c. of* DRAWING.

CHAP. I.

*Of* DRAWING in *General*.

DRAWING is the Art of representing the Appearances of Objects by Imitation; or expressing, by Lines and Shades, the Form or Appearance of any Thing in Nature or Art; the Copying of another Draught, or any Design conceived in the Mind; and all this without the Assistance of mathematical Rules.

The Art of Drawing, being an Accomplishment not more elegant, agreeable and ornamental than useful, is, therefore, by no Means to be neglected in the Education of Youth, wherein any Genius or Inclination that Way is discovered. Besides its being of all Arts, the most universally admired and esteemed, there are few other Arts or Professions to which it is not assisting: its great Use is not only confined to Painters, Engravers, Gardeners, Embroiderers, Weavers, and many others concerned in Designing; but the Mathematician, Engineer, Architect and Navigator daily practise it. All Designs and Models are executed by it; its Use appears in every Station of Life, and it is equally admired by Children and by Adults.

To be able, on the Spot, to take the Sketch of a fine Building, or a beautiful Prospect, of any curious Production of Art, or uncommon Appearance in Nature, is not only a very desirable Accomplishment, but a very agreeable Amusement. Rocks, Mountains, Fields, Woods, Rivers, Cataracts, Cities, Towns, Castles, Houses, Fortifications, Ruins, or whatever else may present itself to View on our Journeys or Travels, in our own or in foreign Countries, may be thus brought Home, and preserved for our future Use, either in Business or Conversation. This Art transmits to our View Things that are long since past, or would otherwise perish; represents to us the Deeds of People and Nations for many Ages dead, and preserves the  
Features

Features and Resemblance of Ancestors, or other valuable Persons, for many Generations. It is therefore no Wonder that an Attainment so universally useful and admired should be distinguished as one of the highest Embellishments of human Life, and be patronized and cultivated by all the generous and ingenious Part of Mankind.

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## C H A P. II.

### *Of the proper Materials for DRAWING.*

**T**HE Materials required in Drawing, are black Lead-Pencils; Crayons of black, white or red Chalk; Crow-Quill Pens; a Rule and Compasses; Camel's Hair Pencils, and Indian Ink.

Accustom yourself to hold your Pencil further from the Point than you do in Writing, which will give you a better Command of it, and contribute to render your Strokes more free and bold. The Use of your Pencil is to draw the first Sketches or Out-lines of your Piece; as any Stroke or Line that is amiss, may in this be more easily rubbed out than in any other Thing; and when you have made your Sketch as correct as you can with the Pencil, you may then draw carefully the best Out-line you have got, with your Crow-Quill Pen and Ink. The Ink made Use of for this Purpose, must not be the common, but Indian Ink; being much softer than the other, and not running;

and, by mixing it with Water, it may be made to any Degree of Strength, and may be used in a Pen like common Ink. After using the Ink, you may wipe out the Pencil-Lines, by rubbing the Piece gently with the Crumb of stale Bread. Having thus got your Out-line discharged, your next Work is to shade your Piece properly, as you shall be directed below, either by drawing fine Strokes with your Pen, where it requires to be shaded, or by washing it with the Hair-Pencil and the Indian Ink. As to the Rule and Compasses, they are never, or rarely, to be used, except in measuring the Proportions of your Figures after you have drawn them, to prove whether they are right or not; or in Houses, Fortifications and other Pieces of Architecture.

Red Lead and red or black Chalk are used in the same Manner as black Lead. White Chalk and Tobacco-Pipe Clay are used in heightening or giving strong Lights, and in drawing on coloured Paper. Pastils or Crayons are any Colours, mixed with Tobacco-Pipe Clay, which, while soft and in the Consistency of a Paste, is rolled up in Pieces, about the Thickness of a Quill, and two or three Inches in Length, and then dried; they are generally used on coloured Paper; and the Colours are rubbed and wrought one into another, in such a Manner that no Strokes appear, but the whole looks as if it was done with a Brush.

## C H A P. III.

*Of LIGHT and SHADE:*

**I**T is the artful Management of Light and Shade that gives the Appearance of Substance, Roundness and Distance, to whatever Bodies are represented by Drawing. Draw a Circle on a Piece of Paper; fill it up with any even Colour, and it will appear to be a Body with a round Circumference and flat Sides: But by colouring it stronger in the Middle, and causing it gradually to weaken towards the Circumference, it will receive a convex Appearance like that of a Ball or Globe: Wherever the Vivacity of Colour is strongest, that Part of the Object catches the Sight first, and appears nearest to it: whereas its Weakness and Goings off are more and more broken and faint, and seem to fly farther off from the Sight. In rounding the Parts of any Object, the Extremities in turning must lose themselves insensibly and confusedly, without precipitating the Light all of a sudden into the Shadows, or the Shadows into the Light, but the Passage of the one into the other must be common and imperceptible; that is, by Degrees of Light into Shadow, and Shadow into Light. Objects that are painted light must have a sufficient Breadth of Shadow to sustain them; and dark Bodies must have a sudden Light behind, to detach them from the Ground, or from those Objects that are placed behind them;

otherwise they will appear confusedly, as sticking upon each other; whereas the Opposition of Shade to a light Object, and of Light to a dark one, gives a Projection, and separates them from other Bodies.

There should be a Balance preserved between the Lights and Shadows: a broad Light ought not to be introduced into a Draught without a large Shadow. The nearer any Object is to the Eye, it is seen so much the stronger and plainer; the Sight is weakened by Distances, and the more remote any Object is, it is seen in a more imperfect Manner. Therefore, those Objects which are placed foremost to the View, ought to be more finished than those that are cast behind; and they should have such a relative Dominion over each other, that as one Object by its Heightnings, causes others to retire more backwards, so the same Object must be chased and made to appear farther from the Sight than others which are more strongly illuminated.

It is not sufficient that remote Objects be only coloured in a more faint and languid Manner; but, according to their Distance, the Parts must appear more or less confused; the Eye not being able to discover minutely what is far separated from it. Pure and unmixed White either draws an Object nearer, or carries it off to a greater Distance. If it be accompanied with Black, the Opposition  
of

of Light and Dark renders the Object more sensible, and brings it nearer to the advanced Part; but pure White, being the lightest of Colours, unless it be forced forwards, and supported by Black, will fly off to the remotest View. As for pure Black, it is the heaviest, most earthy, and most sensible of all Colours, and brings the Objects nearer to the Sight: It must be placed in Masses, be insensibly confused, and have its proper Reposes.

The Representations of Bodies give them always such Lights as are most proper and convenient to their supposed Situations. If the Objects are in the Fields or open Air, and the Sun not visible, or obscured by Clouds, you must then introduce almost an universal Light, though not warm and strong, and your Shades must be faint: but when the Sun is conspicuous, and shines in its full Lustre, then the Light must be very strong and bold, and the Shadows very dark. If the Objects you represent be supposed in a Room, a little, but not very much, illuminated, and you survey it from without, and stand on a Level with the Light that strikes upon it, the Shadows of that Figure must be very soft, whereby the Figure itself will appear beauteous to the Eye; and will, notwithstanding the Softness of the Shadow, seem as imbossed, and come boldly out. A small Light illuminating a Body occasions the Shadows on the dark Side to be large, and their Extremities

to be very bold. On the other Hand, a Light makes the Shadows on the darker Side to be more distinct and more soft in their Limitations.

Reflection is to be used in delineating glittering or shining Bodies, as Glass, Pearls, Silver, &c. Let the Cause of the Reflection, be it more or less, be seen in the Thing itself. Place all your Lights one Way through the whole Work; and if the Light falls sideways on the Picture, the other Side, which is the farthest from the Light, must be made the darkest. That Part of the Body must be made lightest which has the Light most opposite to it; if the Light be placed above the Head, then the Top of the Head must be made lightest; the Shoulder must receive the next greater Degree of Light; and thus must you continue to shade, losing the Light by Degrees. By how much one Part of the Body projects more than another, it must by so much be made the lighter: and, on the contrary, those Parts that bend inward must be made so much the darker. Two equal Lights must never be made in one and the same Picture; the greater is to strike forcibly into the Middle, and with greatest Lustre on those Parts of the Design where the principal Figures and Strength of the Action seem to lie, diminishing it gradually as it approaches nearest the Extremities of the Piece.

## C H A P. IV.

*General Rules for DRAWING.*

**B**EGIN with plain geometrical Figures, as Lines, Angles, Triangles, Polygons, Arches, Circles, Ovals, Cones, Cylinders, and the like, being the Foundations of all other Proportions. The Circle is of Use in the several orbicular Forms, as the Sun, Moon, Globes, &c. The Oval in giving a just Proportion to the Face and Mouth; and the Square confines a Picture you are to copy, &c. The Triangle is of Use in drawing a side or half Face; Angles and Arches, in Perspective; and the Polygon in Ground-plats, Fortifications, &c. The Cone, in Spires, Steeples, Tops of Towers, &c. The Cylinder, in Columns, Pillars, &c.

Having brought your Hand to be fit and ready in general Proportions, accustom yourself to give every Object its due Shades, according to its Concavity or Convexity, and to elevate or depress the same, as the Object appears either nearer or farther off the Light. Before you begin to work, view your Original with close Attention; divide it in your Mind into several Parts; observe the Length, the Breadth, and the Similitude of each Part; consider their Proportion to each other and to the whole; the Distances from one Part to the other, and what Parts lie opposite to each other.

After

After you have done your Copy, view it afresh, by comparing it with the Original, for the discovering and amending of Faults, as it will not only serve to perfect you in that particular Draught, but will improve your Knowledge of Lines and Proportions in general, and in Time enable you for the nearest Imitations. The Out-lines must be drawn in a gliding Manner, large and smooth, which will give them the Resemblance of Life and Motion. You must preserve in your Draught a strong Resemblance between the Parts and the Whole; every Member ought to be made to agree; strong Limbs have no Relation to a consumptive Body, or decayed old Age; and the Eyes, Legs, Hands and Feet, should be exactly paired.

Having good Copies to draw after, learn to reduce them to other Proportions, either larger or smaller, and this by frequent Practice. In drawing Fruits, as Apples, Pears, Cherries, &c. with their Leaves, Herbs, Trees, &c. of different Kinds; as also in the Imitation of Beasts, Fowls, Fishes, &c. it is requisite not only to be perfect in laying down the exact Proportions, but, before you proceed to the shadowing and trimming your Work, to be well acquainted in the general or outward Lines; and this is still more necessary in imitating the Body of a Man with all its Lineaments, as Head, Nose, Eyes, Ears, Cheeks, Arms and Shoulders; as also in the Drapery, or

Imita-

Imitation of the Cloathing, and the artificial setting off the outward Coverings, Habits and Ornaments of the Body, in their natural and proper Folds.

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## C H A P. V.

### *Particular Directions for DRAWING.*

**I**N drawing after a Picture or Print, you must take Care to place it in such a Light that the Gloss of the Colours may not interrupt your View, but so that the Light and your Eye may fall equally and obliquely upon the Piece. To this End you are to consider from what Point, and in what Direction the Light falls upon the Objects, according to which Direction let all your Lights and Shades be placed throughout the Work. That Part of the Object must be the lightest which has the Light most directly opposite to it; if the Light falls sideways on your Picture, you must make that Side which is opposite to it lightest; and, on the contrary, that Side which is farthest from it darkest. Let the Piece be placed at such a Distance, that, upon opening your Eyes, you may view it all at once, and the larger the Picture is, it should be so much the more placed off at the greater Distance: but right before you, and a little reclined.

Draw all your Out-lines at first very faint with a Coal, which may easily be rubbed out again with the Feathers of a Duck's Wing, or the Crumb of Bread;

Bread ; and these Out-lines should be drawn true, and agreeable to the Pattern, before you begin to shadow any Part of the Object. The Out-lines next the Light should be drawn more faint ; and when you have drawn one Feature, it should be a Direction for you, in some Measure, to draw another, by observing with your Eye the Distance from that to the next Feature, making a full Mark at the Place with your Coal ; then draw it, and so to the next, till you have drawn the whole Figure.

Then observe the Middle of the Picture you would copy, and touch upon the Paper with the Point of your Coal ; afterwards observe the more conspicuous and uppermost Figures, if there are more than one, which you are to touch lightly in their proper Places. Thus running over the whole Draught, you will see, as it were, the Skeleton of the Piece you are to draw.

Having made out these Sketches, view them diligently, to see if they answer your Pattern or not ; for the Gestures of the Life ought to shew themselves eminently in the first and rudest Draught of the Piece ; correct and amend whatever you perceive amiss ; adding and diminishing as it varies from the Pattern, by which Means it will be brought nearer and nearer to the Life.

Observe the Distance of one Limb, Joint or Muscle, from another, and the same in all other  
Accidents

Accidents of the Figure; their Length, Breadth, Turnings, &c. Shadow next to the Light very faintly; and where you see bold and free Touches, be not timorous in expressing the same. In drawing a Head after the Life, or otherwise, take Care to place the Features exactly right upon the Cross-lines, whether it be a full Face or three-quarter Face. In fore-shortening, you must make the Cross-lines to fly upwards, but where the Aspect is downwards, they must be made downwards in a circular Manner.

Having drawn the Out-lines true with a Coal, you are to proceed to trace the same Lines again with a Pen, Indian Ink, &c. drawing them with more Exactness; and by imitating all the Hatches, with their exact Distances one from another, their Crossings, Turnings and Windings, with more Boldness and Freedom, perfect your Design.

In drawing after a naked Body, all the Muscles are not to be so plainly expressed as in anatomical Figures; but that Side whose Parts are most apparent, and of Signification in the Performance of any Action, must be made to appear more or less, according to the Force of that Action.

In drawing young Persons, the Muscles must not appear manifestly so hard as in elder and full grown Persons; the same Thing is to be observed as to fat and fleshy Persons, and such as are very delicate and beautiful; and in Women scarce any  
Muscles.

Muscles at all are to be expressed, or but very little, unless it be in some very forcible Action; and then too they are to be represented very faintly; the like is also to be observed as to Children. The Motion of the whole Body must be considered in drawing of the Muscles; as in the rising and falling of the Arms, the Muscles of the Breast appear either more or less: the Hips do the like, according as they are bent outward or inward; and it is the same chiefly in the Shoulders, Sides and Neck, according to the several Actions of the Body.

The Breadth and Largeness of a Picture is also to be considered; it should be larger about the Legs and Garments, shewing itself slender above, by discovering one Shoulder and hiding the other, which is shortened by turning the Body. But sometimes the Figure is to be represented biggest in the upper Parts, by representing either or both the Shoulders, or both the Arms; shewing the one Leg, and hiding the other; or both of them after one Manner, at Discretion. Neither ought this to be observed only in the whole Body, but even in every Part, so that in the Legs, when a Muscle is raised outwards on the one Side, that which is directly on the contrary Side must be drawn in and hid, as it appears in the Life.

The Proportion of the Figure ought to be multiplied by Degrees, in Proportion of one to two, three.

three, four, &c. for herein the chief Skill consists; the Diameter of the biggest Place between the Knee and the Foot is double the least, and the largest Part of the Thigh triple.

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## C H A P. VI.

### *Of drawing* FACES.

**I**N drawing a Head, it is usually divided into four equal Parts. 1. From the Crown of the Head to the Top of the Forehead. 2. From the Top of the Forehead to the Eyebrows. 3. From the Eyebrows to the Bottom of the Nose. 4. From thence to the Bottom of the Chin. But this Proportion is not constant; those Features, in different Men, being often very different as to Length and Shape. In a well proportioned Face, however, they are nearly right.

To direct you, therefore, in forming a perfect Face, your first Business is to draw a complete Oval, as you see in Plate I. Figure 1, in the Middle of which, from the Top to the Bottom, draw a perpendicular Line; and through the Center or middle of this Line draw another, directly across from one Side to the other of your Oval. On these two Lines all the Features of the Face are to be drawn, as follows. Divide your perpendicular Line into four equal Parts; the first must be allotted to the Hair of the Head; the second is from the Top of the Forehead to the Top of the Nose, between the Eyebrows; the third is from  
thence

thence to the Bottom of the Nose ; and the fourth includes the Lips and Chin : The Line across the perpendicular one, or the Breadth of the Face, is always supposed to be the Length of five Eyes ; you must therefore divide it into five equal Parts, and place the Eyes upon it so as to leave exactly the Length of one Eye betwixt them. This is to be understood only of a full front Face ; for if it turns to either Side, then the Distances are to be lessened on that Side which turns from you, less or more, in Proportion to its Turning. The Top of the Ear is to rise parallel to the Eyebrows, at the End of the Diameter or cross Line, and the Bottom of it must be equal to the Bottom of the Nose ; the Nostrils ought not to come out farther than the Corner of the Eye in any Face ; and the Middle of the Mouth must always be placed upon the perpendicular Line. The Mouth, when shut, is as large as an Eye.

The following is an ingenious Device, which perhaps may somewhat assist the young Practitioner, in forming the Face according to its different Turnings, and in placing the Features properly thereon. Procure a Piece of smooth Wood, turned for the Purpose, in the Shape of an Egg, which is nearly the Shape of the human Head ; draw a Line lengthways quite round it, as in the last Fig. and divide this Line into two equal Parts, by another Line drawn directly across it at right Angles. The Features being drawn on these two Lines, accord-

according to the Rules delivered above, will produce a Fore-right Face. Turn the Oval a small Matter from the left Hand to the right, and the Perpendicular will appear bent like a Bow, as you see in Fig. 2; upon which the particular Features are to be drawn, as in Fig. 3; always observing in what Manner the Nose projects beyond the Round of the Oval. The same must be observed, if you turn the Oval from the right Hand to the left, as in Fig. 4; and if you incline the Oval downwards, and to the right, the Lines of the Cross will appear, as in Fig. 5; and the Features drawn on them, as in Fig. 6. If you turn it upwards, reclining to the left, the Lines of the Cross will appear, as in Fig. 7, and a Face drawn on them, as in Fig. 8. A great Variety of Faces may be shewn by this Oval, according as you incline, recline, or turn it more or less.

But those Figures which come sideways are to be drawn by Means of a Perpendicular, as in Fig. 9, upon which the Forehead, Nose, Mouth and Chin are to be drawn, as you see in Fig. 10.

It is to be observed, that if the Face be fat, the Cheeks will seem to swell; if lean, the Jaw-bones will stick out, and the Cheeks fall in; but if it be neither too fat nor too lean, it will be nearly round. Touch the Features lightly, where the Eyes, Nose, Mouth and Chin should stand: then begin to draw them more exactly, and so proceed till you have finished the Face; after which draw the Hair, Beard and Shadows about it. You are to consider

der all those chief Touches which give Life to a Face, and that discover the Disposition of the Mind : Thus the Mouth extended, and the Corners turning a little up, shews a smiling Countenance, &c. You must take Care that the Shadows be not made too dark where they should be light, because afterwards they cannot be rendered more light ; and remember, that they are to be more faint and light in a fair, than in a swarthy Complexion.

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## C H A P. VII.

*Of the MEASURES and PROPORTIONS  
of the several Parts of the Body.*

**T**HE Ancients commonly allowed eight Heads to their Figures, though some of them had but seven ; however, the Moderns ordinarily divide their Figure into ten Faces : That is, from the Crown of the Head to the Sole of the Foot, in the Manner following. From the Crown of the Head to the Forehead, is the third part of the Face. The Face begins at the lowest Hairs which are upon the Forehead, and ends at the Bottom of the Chin. The Face is divided into three proportional Parts ; the first contains the Forehead, the second the Nose, and the third the Mouth and Chin. From the Chin to the Pit between the Collar-bones are two Lengths of a Nose. From the Pit betwixt the Collar-bone to the Bottom of the Breast, one Face. From  
the

the Bottom of the Breast to the Navel, one Face. From the Navel to the Genitals, one Face. From the Genitals to the upper Part of the Knee, two Faces: The Knee contains half a Face. From the lower Part of the Knee to the Ankle, two Faces. From the Ankle to the Sole of the Foot, half a Face.

A Man, when his Arms are stretched out, is, from the longest Finger of his right Hand to the longest of his left, as broad as he is long. From one Side of the Breasts to the other, two Faces. The Bone of the Arm, called *Humerus*, is the Length of two Faces, from the Shoulder to the Elbow. From the End of the Elbow to the Root of the little Finger, the Bone called *Cubitus*, with Part of the Hand, contain two Faces. From the Box of the Shoulder-blade to the Pit betwixt the Collar-bones, one Face. If you will be satisfied in the Measures of Breadth, from the Extremity of one Finger to the other, so that this Breadth should be equal to the Length of the Body, you must observe that the Boxes of the Elbows with the *Humerus*, and of the *Humerus* with the Shoulder-blade, bear the Proportions of half a Face, when the Arms are stretched out. The Sole of the Foot is the sixth Part of the Figure. The Thumb contains a Nose. The Inside of the Arm, from the Place where the Muscle disappears, which makes the Breast, called the pectoral Muscle, to the Middle of the Arm, four

four Noses. From the Middle of the Arm to the Beginning of the Hand, five Noses. The longest Toe is a Nose long. The two utmost Parts of the Teats, and the Pit betwixt the Collar-bones of a Woman, make an equilateral Triangle.

For the Breadth of the Limbs no precise Measures can be given; because the Measures themselves are changeable, according to the Quality of the Persons, and according to the Movement of the Muscles.

## C H A P. VIII.

*Of drawing the BODY at full Length.*

**F**IRST make your Oval for the Head, and having divided it, according to the Instructions already given, draw a perpendicular Line from the Top of the Head to the Sole of the Foot, and measure out eight Lengths of the Head. This Line is of special Use to direct you in placing the Figure upright; and in the Action of the Posture, where it falls in, and where it swells out. One Head's Length from the Chin, you must draw the Breasts; the third Measure reacheth to the Navel; the fourth to the Privities; the fifth to the Middle of the Thigh; the sixth to the lower Part of the Knee: the seventh to the lower Part of the Leg; and the eighth to the Heel and Sole of the Foot.

Observe,

Observe, in every Measure, what Touches there are of the Muscles. Draw that Leg first, on which the Body stands; then draw the other; and after that the Arms and Hands; but draw, at first, all the Parts very lightly, with a Coal only: because there is least Trouble in altering and rubbing out the Coal. As for the Hands, they are twice as long as they are broad, and each of their Parts has its Length, Breadth, and Thickness. The Nail upon the Finger is about half the Joint it is upon. The Length of the Foot is a sixth Part of the Height of a Person; and the Length is five Eighths more than the Breadth. The Length of the Face and Hands ought to be exactly equal, and makes but just the tenth Part of a Person's Height.

The Rules in drawing Children are as follow: Some make a Child to contain five Measures of the Head, *viz.* from the Top of the Head to the Privities, three, and in the Thighs and Legs two more; the Breadth between the Shoulders, the Length of a Head and a Half; the Breadth of the Body above the Navel, the Length of one Head; and the Breadth of the upper Part of the Thigh, is the third Part of two Lengths of the Head; the Breadth of the Knee is just the Measure there is betwixt the Eyes and the Chin; the Small of the Leg, and the Brawn of the Arm, are of the Thickness of the Neck.

In general, let it be observed always to begin with the right Side of the Piece you are copying, for by so doing you will always have what is done before your Eyes, and the rest will follow more naturally, and with greater Ease; whereas if you begin with the left Side, your Hand and Arm will cover what you do first, and deprive you of the Sight of it; by which Means you will not be able to proceed with so much Ease, Pleasure or Certainty. As to the Order and Manner of your Proceeding, in drawing the human Body, you must first sketch the Head; then the Shoulders, in their exact Breadth; then draw the Trunk of the Body, beginning with the Arm-pits (leaving the Arms till afterwards) and so down to the Hips on both Sides; being sure to observe the exact Breadth of the Waist. When you have done this, then draw that Leg which the Body stands upon, and afterwards the other, which stands loose; then draw the Arms, and last of all the Hands.

Take notice also of the Bowings and Bendings of the Body, making the Part opposite to that which bends correspond in bending with it. For instance, if one Side of the Body bends in, the other must stand out answerable to it; if the Back bends in, the Belly must stick out; if the Knee bends out, the Ham must fall in; and so of any other Joint in the Body. Finally, endeavour to form all the Parts of your Figure with Truth, and in just Proportion, not one Arm or one Leg  
bigger

bigger or less than the other; not broad Shoulders with a thin slender Waist, nor raw and bony Arms, with thick and gouty Legs, but let there be a kind of Harmony and Agreement amongst the Members, and an agreeable Symmetry throughout the whole Figure.

But as the Essence of Drawing consists in making, at first, a good Sketch, you must in this Particular be very careful and accurate; draw no Part perfect or exact, till you see whether the whole Draught be good; and when you have altered that to your Mind, you may then finish one Part after another as curiously as you can. In drawing the Eyes, Ears, Legs, Arms, Hands, Feet, &c. great Care, Study and Practice, are requisite: This must be learned by carefully imitating the best Prints or Drawings you can get of Eyes, Ears, &c. for as to the mechanical Rules of drawing them by Lines and Measures, they are not only perplexed and difficult, but also contrary to the Practice of the best Masters. But the Actions and Postures of the Hand are so many and various, that no certain Rules can be given for drawing them that will universally hold good; and as the Hands and Feet are difficult Members to draw, it is necessary, and well worth while, to bestow some Time and Pains about them, carefully imitating their various Postures and Actions, so as not only to avoid all Lameness and Imperfection, but also to give them Life and Spirit.

In drawing a labouring Man, you must represent him with strong Limbs and raised Muscles swelling and standing out, especially in bearing Burdens, drawing Weights, leaping, walking, combating, or such like violent Exercises. In representing Persons asleep, you must carefully avoid giving any such Postures or Actions in their lying as would not in all Probability afford Rest; for a great Want of Judgment would appear in representing their Limbs or Bodies supported by their own Force, and not by the Help of something else.

With regard to the Representation of the Passions, Mr. *De Piles* observes, that it is absurd, as well as impossible, to pretend giving such particular Demonstration of them as to fix their Expression to certain Strokes which the Painter should be obliged to make use of, as essential and invariable Rules. This, says he, would be depriving the Art of that excellent Variety of Expression; which has no other Principle than Diversity of Imagination, the Number of which is infinite. The same Passion may be expressed several Ways, each yielding more or less Pleasure in Proportion to the Painter's Understanding, and the Spectator's Discernment.

Though every Part of the Face contributes towards expressing the Sentiments of the Heart, yet the Eyebrow, according to Mr. *Le Brun*, is the principal Seat of Expression, and where the  
 Passions

Passions make themselves most known. It is certain, says he, that the Pupil of the Eye, by its Fire and Motion, very well shews the Agitation of the Soul; but then it does not express the Kind or Nature of that Agitation, whereas the Motion of the Eyebrow differs according as the Passions change their Nature. To express a simple Passion, the Motion is simple; to express a mixt Passion, the Motion is compound. If the Passion be gentle, the Motion is gentle; if it be violent, the Motion is so too. We may farther observe, says he, that there are two Kinds of Elevation in the Eyebrows; one in which the Eyebrows rise up in the Middle; This Elevation expresses agreeable Sensations; and it is to be observed, that then the Mouth rises at the Corners: Another, in which the Eyebrows rise up at the Ends and fall in the Middle, denotes bodily Pain; and then the Mouth falls at the Corners. In Laughter all the Parts agree, for the Eyebrows, which fall towards the Middle of the Forehead, make the Nose, the Mouth and the Eyes, follow the same Motion. In weeping, the Motions are compound and contrary, for the Eyebrows fall towards the Nose, and over the Eyes; and the Mouth rises that Way. It is to be observed also, that the Mouth is the Part of the Face which more particularly expresses the Emotions of the Heart; for when the Heart complains, the Mouth falls at the Corners; when it is pleased, the Corners of the Mouth are elevated; and when it has an

Aversion, the Mouth shoots forward, and rises in the Middle.

The Head, says Mr. *De Piles*, contributes more to the Expression of the Passions, than all the other Parts of the Body put together. Those separately can only shew some few Passions, but the Head expresses them all. Some, however, are more peculiarly expressed by it than others, as Humility, by hanging it down; Arrogance, by lifting it up; Languishment, by inclining it on one Side; and Obstinacy, with a stiff and resolute Air, makes it stand upright, fixed and stiff between the Shoulders. The Head also best shews our Supplications, Threats, Mildness, Pride, Love, Hatred, Joy and Grief: The whole Face and every Feature contribute something, but more especially the Eyes; yet though the Passions of the Soul are most visible in the Lines and Features of the Face, they often require also the Assistance of other Parts of the Body: Without the Hands, for Instance, an Action is weak and imperfect; their Actions, which are almost infinite, create numberless Expressions.

It is by them that partly we desire, hope, promise, call and send back; they are the Instruments of Threatning, Prayer, Praise, &c. by them we, in a great Measure, approve, condemn, refuse, admit, fear, ask, express our Joy and Grief; our Doubts, Regrets, Pain and Admiration: but to say how these Parts must be disposed for expressing the various Passions, is impossible: nor can any exact Rules be given for it, both because the Task  
would

would be infinite, and because every one must be guided in this by his own Genius and the particular Turn of his Studies.

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## C H A P. IX.

### *Of DRAPERY.*

**I**N the Art of cloathing your Figures, or casting the Drapery upon them with Elegance and Propriety, many Things are to be observed: However, this Art consists chiefly in three Points, *viz.* the Order of the Folds or Plaits, the different Quality of the Stuffs, and the Variety of their Colours. As to the Folds, they ought to be so managed, as that you may easily perceive what it is they cover, and distinguish it from any Thing else; as for Instance, that you see it is an Arm that is under the Drapery, and not a Leg; or a Leg, and not an Arm, &c. Again, the Folds ought to be large, and a Contrast should be observed between them; otherwise, in the first Place, they break and divide the Sight too much; and in the next Place the Drapery will be too stiff. As to the Quality of the Stuffs, it should be well considered: some Folds being abrupt and harsh, while others flow more soft and easy. Again, the Surface of some have a Lustre, while others are flat and dead; and some are fine and transparent, while others are firm and solid. The Variety of Colours, when well managed, makes the greatest Beauty in Painting: Some are not equally agreeable with Respect to each other; and some are never to be placed near certain others.

The Drapery must never be made to adhere, or stick too close to the Parts of the Body, but it must seem to flow round, and, as it were, embrace them: yet in such a Manner as that the Figure may be easy, and have a free Motion. A great Lightness and Motion of the Drapery are only proper in Figures in much Agitation, or exposed to the Wind. The Nudities of the Figure should always be designed before you proceed to draw the Draperies. Draw the Out-lines of the Garments lightly; then draw the great Folds first, and stroke these into lesser; taking Care that they do not cross one another. The Draperies that cover those Parts which are exposed to great Light, must not be so deeply shaded, as to seem to pierce them; nor should those Members be crossed by Folds that are too strong; lest, by the too great Darkness of their Shades, the Members look as if they were broken. Folds, in general, should be large and as few as possible: However, they must be greater or less, according to the Quantity and Quality of the Stuffs of which the Drapery is supposed to be made; suit the Garments to the Body, and make them bend with the Body, according as it stands in or out, strait or crooked, or as it bends one Way or another; and the closer the Garment fits to the Body, the narrower and smaller must be the Folds.

The Quality of the Person is also to be considered in the Drapery: For Instance, if they are Magistrates, their Draperies ought to be large, fine and flowing; if Country-clowns, they ought to be

be coarse and short; and if Ladies and Nymphs, light and soft, &c. Folds well imagined give much Spirit to any Kind of Action, because their Motion implies the like in the acting Member, which seems to draw them forcibly, and make them more or less stirring, as the Action is more or less violent. An artful Complication of Folds, in a circular Manner, greatly helps the Effect of Fore-shortenings. All Folds consist of two Shades and no more, which you may turn with the Garment at Pleasure, shadowing the inner Side more deeply.

The Shades in Silks and fine Linnen are very thick and small, requiring little Folds and a light Shadow. Observe the Motion of the Air or Wind, in order to draw the loose Apparel all flying one Way: and draw that Part of the Garment that adheres closest to the Body, before you draw the looser Part that flies off from it, lest by drawing the loose Part of the Garment first, you should mistake the Position of your Figure, and place it awry.

Rich Ornaments, when judiciously and sparingly used, may sometimes contribute to the Beauty of Draperies. But such Ornaments are far below the Dignity of Angels or heavenly Figures; the Grandeur of whose Draperies ought rather to consist in the Boldness and Nobleness of the Folds, than in the Quality of the Stuff, or the Glitter of Ornaments. Light and flying Draperies are proper only to Figures in great Motion, or in the

Wind: but when in a calm Place, and free from violent Action, their Draperies should be large and flowing, that, by their Contrast, and the Fall of the Folds, they may appear with Grace and Dignity.

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## C H A P. X.

### *Of Drawing MIXED FIGURES.*

**I**N order to draw the Form of any Beast, begin at the Forehead, with the Lead or Coal, drawing downward the Nose, Mouth, upper and nether Chap, ending the Line at the Throat. Then viewing it; again, from the Part where you formerly begun, continue it over the Head, Ears, and Neck, till you have given the full Compass of the Buttock. Afterwards mark out the Legs, and touching out the Breast with the Eminency thereof, finish the Tail, Paws, Tongue, Teeth, Beard, and the several Shadows.

In drawing Beasts, you must be well-acquainted with their Shape and Action, without which you will never perform any Thing excellent in this Way; and whatever Beast you draw, you must be sure to give a Sketch of the Landskip of the Country natural to that Beast.

In drawing Birds you are to begin also at the Head, continuing the Breast-line from under the Throat down to the Legs; then begin at the Pinion for making the Wing; this being joined to the Back-line, the Figure will be presently finished.

The

The Eyes, Legs, and Tail, are to be drawn last; the Feathers, beginning at the Head very small, must fall backwards one Way in five Ranks, still increasing till finished.

Insects, as Flies, Bees, Wasps, Grasshoppers, Worms, and such like, are drawn with great Ease, provided you, for the first Time, have the Original before your Eyes.

In drawing a Flower, begin from the Rose-tuft or Wart in the Middle, as in a Rose or Marigold with the yellow Tuft, which being made, draw Lines equally divided from thence to the greatest Compass or Extent of the Flower. They may be drawn either fully open, or in the Bud; the Leaves may first be drawn rudely, afterwards giving them their Veins, or Jaggedness.

## C H A P. XI.

*Of Drawing LANDSKIPS, BUILDINGS, &c.*

**A**LL true Drawing consists in nicely measuring the Distances of each Part of your Piece by the Eye. In order to facilitate this, you are to imagine in your own Mind, that the Piece you copy is divided into Squares: As for Example; suppose, or imagine a perpendicular and an horizontal Line crossing each other in the Center of the Picture you are to copy: Then suppose also two such Lines crossing your own Copy. Observe in the Original what Parts of the Design those  
Lines

Lines intersect, and let them fall on the same Parts of the supposed Lines in your Copy. If you are to draw a Landskip from Nature, take your Station on a rising Ground, where you may have a large Horizon, and mark your Tablet into three Divisions downwards, from the Top to the Bottom: and divide, in your own Mind, the Landskip you are to take into three Divisions also. Then, turn your Face directly opposite to the Middle of the horizontal Line, keeping your Body fixed, and draw what is directly before your Eyes, upon the Middle-division of your Tablet; then turn your Head, but not your Body, to the left Hand, and delineate what you view there, joining it properly to what you had done before. Lastly, Do the same by what is to be seen on your right Hand, laying down every Thing exactly, both with Respect to Distance and Proportion. Make the nearest Objects in your Piece the highest, and those that are further off to shoot away lower and lower, till they come almost level wth the Line of the Horizon; lessening every Thing proportionably to its Distance, and observing, also, to make your Objects fainter and less distinct, the farther they are removed from your Eye. Make all your Lights and Shades fall one Way; and let every Thing have its proper Motion, as Trees shaken by the Wind, the small Boughs bending more, and the large ones less; Water agitated by the Wind, and dashing against Ships or Boats, or falling from a Precipice upon Rocks and Stones,

and

and spirting up again into the Air, and sprinkling all about: Clouds also in the Air, now gathered with the Winds, now violently condensed into Hail, Rain, and the like; always remembering that whatever Motions are caused by the Wind must all be made the same Way.

Let the Work imitate the Season it is intended to represent; as, if you intend it for a Winter-Piece, represent the Felling of Woods, sliding upon the Ice, Fowling, Hunting, &c. making the Trees every where naked, or laden with Snow or Hoarfrost; the Earth bare; the Air thick or heavy; the Water frozen, with Carts passing over it, &c.

Let every Site have its proper Adjuncts or additional Graces, as the Farm-house, Wind mill, Water-mill, Woods, Flocks of Sheep, Herds of Cattle, Pilgrims, Ruins of Temples, Castles and Monuments, with a thousand such other Things proper to particular Subjects.

## C H A P. XII.

*Curious RULES for drawing any Object, in its Out-lines, as exact as Nature, with some farther INSTRUCTIONS for Shadowing, &c. without any Regard to the forementioned Rules, or any Knowledge in the Art of DRAWING.*

**T**AKE a Sheet of the thinnest, or whitest Brown-paper, and brush it over with Oil of Turpentine, which will immediately render

it transparent: Then, after drying the Paper in the Air, strain it upon a Frame, and fix it against the Object you design to draw: This done, place, right before it, a Piece of Wood with a Hole in it, fit for one's Eye to look through, and as you meet any Out-lines of the Object on the transparent Paper, trace them over with a Pencil, by which Means you will obtain the just Proportion, and true Representation of any Object in its Out-lines.

To render this still more elegant, observe the Tracings of your Draught, wherever the Shades are, and mark them with your Pencil, for all the Art in the World can never dispose the Shades so regularly, as one may touch by this Method, but the Shades must be drawn quickly after the Out-lines are drawn, not at different Times, because the Sun instantly changes them.

Here observe, as in certain Objects you will have fainter, stronger, and darker Shades, in your Remarks of them, to take such Memorandums as may direct you how to finish them with Indian Ink, or other Colour, when you sit down to complete your Work. To this End the best Way is, before you trace out your Object, to prepare three Shells or Gallipots of Indian Ink, mixed with common Water, *viz.* one of a very faint Black, one of a middling Black, and one of an intense Black, numbering them 1, 2, 3, and as you make your Observation on the Shades of your Object, mark upon your Draught the same  
Numbers

Numbers as they happen to appear, so that afterwards you may finish with Certainty.

In this Regard the transparent Paper is of great Use; for being laid upon any Paper or Print in a loose Sheet, all the Lines will be seen so perfectly through it, that you may copy them with the greatest Ease; and if the Print or Picture be done by a good Master, you can see which Lines are strong, which soft, and how to imitate them.

There is yet another Way to take Views and Landskips, which some prefer to the transparent Paper; and that is, either with white or black Tiffany or Lawn strained upon a Frame, and used in the same Manner as the Paper, excepting that, as the Black-lead Pencil is used to the Paper, on the white Tiffany and on the Lawn, you must use Charcoal very soft and finely powdered; but on the black Tiffany very tender white Chalk is to be used.

### C H A P. XIII.

*Several other curious and easy Methods of taking VIEWS, copying DRAUGHTS, PRINTS, &c. to the greatest Degree of Accuracy.*

I. **A** Draught may be taken regularly, from a Drawing, on transparent Paper, as follows. Take a Piece of Paper of the same Size with that of the Draught; rub one Side of it with some Powder of Black-lead, till it be well and equally

equally blacked, so that a Finger, touching it, will hardly be tinged with the Blacking; then take the Print, and laying the Paper underneath it with the black Side downwards, upon another Piece of white Paper of the same Size, pin the three together in two or three Places: afterwards, take a Pin or Needle, somewhat blunted at the Point, and trace it over the Out-lines of your Picture, which, with a little Pressing, will direct the black Paper to impress the white, so as to receive every Stroke you draw; this done, you may carefully correct what Errors you see with your Black-lead Pencil, cleaning the new-made Draughts slightly with the Crumb of stale Bread.

2. As for the Draughts taken on Tiffany or Lawn, they are only to be laid on Paper, that is, such as is drawn with Charcoal upon white, and that drawn with Chalk upon black or blue Paper; and then, giving each of them a Knock or two with a Hammer, the Charcoal or the Chalk will fall through them upon the Papers directly in the Lines they were drawn, and give you the true Representation of the Object drawn from the Life, in white Lines upon the black Paper, and in black Lines upon the white.

Then strengthen these Shadows of Drawings with your Black-lead Pencil, Chalk, or red Oker, upon the Pieces of Paper where they made the Marks; for otherwise the Lines will easily be rubbed out. But it must be observed that this Amendment is to be made soon after the Lines; because

because those tender Draughts will quickly vanish, if Care is not taken to strengthen them immediately. You are to begin this Operation at the Bottom of the Drawing.

3. Another Way is, by taking a thin Piece of Paper, and holding it against a Glass-Window, particularly a faded one, because the Interruption of the Lead in the smaller glazed Windows will hinder Part of the Prospect; then draw what you see from the Glass, and afterwards the Black-lead Paper is to be used as directed before.

4. There is another Way still which may be more easy to the Hand or Arm of a Person not accustomed to drawing upon a Paper or Lawn placed upright, which is by the Use of a Camera obscura, though to help the Hand one may hold a Baguette, or such a Stick in the left Hand as the Oil-painters use to rest the right Hand upon; or have some other Rest made for the right Hand, as may be easily screwed up and down at Pleasure. But there is this Difference still between Drawing a Piece of Perspective or View on a transparent Paper, or Lawn placed upright against any Object, and drawing by the Camera obscura, that such a Piece will take in more of the View or Object, and from a greater Distance than the Camera obscura will: However, the portable Camera obscura will, at first, be very easy to the Arm of a Beginner, by Reason the Objects appear on an horizontal Plane, such as a Table, and the  
Hand

Hand having a proper Rest, will more easily follow the Line represented on the Plane, with great Exactness.

The Camera obscura is a Machine or Apparatus wherein the Images of external Objects are represented distinctly, and in their genuine Colours, either in an inverted or erect Situation. This Machine may be made as follows: Darken a Chamber, one of whose Windows look into a Place set with a Variety of Objects; leaving only one little Aperture open in the Window. In this Aperture fit a Lens, either a plane convex one, or one convex on both Sides, so as to be the Portion of a large Sphere. At a due Distance, to be determined by Experience, spread a Paper or white Cloth on the Wall, unless the Wall itself be whitened so as to serve the Purpose; and on this the Images of the desired Objects will be delineated invertedly.

In this Case, it is not more difficult to draw, or rather copy the Objects, though they are reverse, than to draw or copy several Things which we see upright on the Frames of transparent Paper, Lawn, or Tiffany; for to trace Lines will be as easily done one Way as the other; and though the Objects falling on the Paper or Cloth will, while you are drawing them, be reversed, it is but turning the Paper or Cloth upside down, when they are done, and the Drawing will be right to the Eye. But to obviate this Difficulty, let the Paper, or what is to receive the Objects, be placed against the Back of a Chair, and let a Person look on the several Objects represented thereon

thereon over the Back of the Chair, and this will set them right to the Eye. Or, if you would rather have the Images appear erect, it may be done either by Means of a concave Lens, or by receiving the Image on a plain Speculum inclined to the Horizon under an Angle  $45^{\circ}$ , or by Means of two Lenses included in a Draw-tube instead of one.

It is to be observed, that if the Aperture does not exceed the Bigness of a Pea, the Objects will be represented thereon, even though there be no Lens at all. To render the Images clear and distinct, it is necessary that the Objects be illuminated by the Sun; and they will be still brighter if the Spectator first stay a Quarter of an Hour in the Dark.

Care must be likewise taken that no Light escape through any Chinks, and that the Wall be not too much illumined. Farther, the greater Distance there is between the Aperture and the Wall, the larger and more distinct will the Images be; but the Rays becoming thus too much dilated, the Brightness of the Image is weakened, till at length it becomes insensible. But the portable Camera obscura is more proper for Beginners, as being more easy for their Arm; besides, the Objects appearing on an horizontal Plane may, of course, be drawn with greater Exactness.

The Construction of a portable Camera obscura may be as follows; Provide a wooden Chest, in the Middle of which raise a little Turret either round  
or

or square, open toward the Object. Behind this Aperture incline a little plain Mirror, to an Angle of  $45^{\circ}$  which will reflect the Rays upon a Lens convex on both Sides, included in a Tube. At the End of the Focus of the Lens, place a Table covered with a white Paper to receive the Image; and lastly, make an oblong Aperture to look through. By Means of this Machine the Images will be exhibited perfectly like their Objects, each cloathed in their different Colours, whereby any Person, unacquainted with designing or drawing, will be able to delineate any Thing to the greatest Degree of Accuracy and Justness; and those even well versed in Painting, will find many Hints by it to perfect them in this Art.

5. Thus far we have shewn how any Person may copy a Draught, Print or Piece of Painting, or even make an exact Representation from the Life; but we shall yet add two other Methods, both easy and entertaining, not hitherto mentioned, for taking of Draughts or Drawings, which are as follow. Prick with a Pin the Out-lines of the Print or Drawing you design to copy, and then laying the same on a Sheet of Paper, take a Powder-puff or Tuft of Cotton, dipping it now and then in Charcoal-dust, and beat it over the pricked Lines through the Picture, by which means you shall have full Directions marked on your Cloth or Paper sufficient to finish a just Drawing.

6. The other Way is, by making such an Impression from the Print as shall give a just Copy of  
it

it; and it is of great Use when we want to carry every Stroke of the Engraver along with us, which Method, if you are very careful, will indeed but very little sully the Print.

For this End, take some white or green Soap, which mix with such a Quantity of Water, as will bring it to the Consistence of a Jelly; with this Mixture rub the Print, and with a wet Sponge gently wet the Paper designed for receiving the Impression: then laying it on the Print, cover all with two or three other Pieces of dry Paper, and rub it very hard all over with any Thing that is smooth and polished; and thus the wetted Paper will have upon it the Reverse of the Print you rubbed it upon, with every distinct Line in the Original, if you have been careful to rub it equally.

#### C H A P. XIV.

*SECRETS for copying of Drawings, &c. continued; also for taking off Medals, &c. various Ways with several other curious PRECEPTS for the Use of Painters, Statuaries, Founders, &c.*

I. *To take a Drawing with FIXED INK.*

**T**AKE a thin Sheet of Paper, and rub it all over with fresh Butter, as equally as possible; then dry it well by the Fire, and rub the buttered Side with either Carmine, Lamp-black, Black-lead-Powder, or blue Bice finely ground, till it is all equally coloured; taking Care in rubbing on any of these, that the Colours will not come off by a very slight

slight Touch of the Finger. Then lay the coloured Side of this buttered Paper upon a Piece of clean Paper, and lay the Print you design to copy upon the buttered Paper; afterwards with a fine Pin, or a Needle blunted a little at the Point, trace the Out-lines of the Drawing carefully, by which Means you will have a good Copy of it upon your white Paper; which may be touched afterwards with Crayons, or the like Colour.

II. *To take the Impression of a Print with RED INK.*

Mix some Vermilion finely ground with Linseed-oil, but not so much but what it shall still be liquid enough to run or flow in a Pen. With this trace the Lines of your Print; and then with a Sponge dipt in Water, wet the Backside of the Print, and turn the printed Side down upon a Piece of white Paper, so as to lie smooth: then lay over that a Piece of dry Paper, and press it hard in every Part: and the lower white Paper will receive the Impression. But if you have a Linnen-press, it is better to put your Papers between two of the Leaves, and screw the Press as tight as you can, by which Means you will have a fine Impression.

III. *To take Draughts, Writings, &c. with red LOOSE INK.*

Take some Vermilion finely ground, and mix it with fair Water in a Gallipot with some Cotton in it, so as that it may run very free in the Pen: With this Mixture draw over all the Strokes of your Print, imitating both the finer and stronger Lines;

Lines ; then with a Sponge dipt in Gum-water wet a Piece of clean white Paper, and while it is wet, turn the Print upon it ; and pressing it well take off the Print, and you will find all the Strokes remain on the clean Paper ; and as soon as it is dry the Vermilion will be fixed to it.

This Sort of Ink has been used frequently in writing any thing designed to be engraved ; for by turning the writing Side of the Paper down upon a Copper-plate covered with Bees-wax and white Ground, rubbing it very equally, the Impression will be upon the Wax.

#### IV. *Taking Draughts with blue* LOOSE INK.

You may likewise make such a sort of Ink with blue Bice and common Water as will run very finely in a Pen, and serve for the same Use as the former Ink.

#### V. *To take off a Drawing in a standing* RED COLOUR *by tracing.*

Take Vermilion finely ground, and mixing it with a little fresh Butter, rub a clean Sheet of Paper on one Side with this Mixture, so that it may bear a slight Touch of the Finger without leaving the Paper ; then laying the coloured Side of this Paper upon a clean Sheet, lay your Print upon the other Side of the coloured Paper ; and then trace every Line you think proper, as already directed in tracing a Draught with fixed Ink : But be sure to pin the three Papers together at the Corners, to prevent their slipping, which

which would inevitably spoil your Work. This Impression made by tracing will hold without rubbing or pressing the Papers. The Quills of a Swallow, after they are thoroughly dry, are very good for tracing.

By mixing Carmine with some fresh Butter, and colouring a Paper with it in the same Manner, you will obtain a more beautiful Colour; and by colouring a Paper in like Manner with blue Bice and Butter, you may have the Drawing blue.

VI. *To take the natural or lively Shape of any*  
HERB or TREE.

First take the Leaf you would copy, and gently rub the Veins on the Backside of it with a Piece of Ivory, or some such like Matter, so as to bruise them a little; afterwards wet the same Side gently with Linseed-oil; and then press it hard upon a Piece of white Paper, and you shall have the perfect Figure of the Leaf, with every Vein in it justly expressed: This Impression being afterwards coloured will seem truly natural, and may be useful to such as would remember Plants.

VII. *Another Way of painting the LEAVES of*  
*Plants, so that the Impression shall appear as*  
*black as if it had been done in a Printing-press,*  
*is as follows.*

When the Leaf is dry, take such a Ball as the Pressmen use for blacking the Types, and rubbing it equally over with Printer's Ink, strike it gently four or five Times on the Back of the Leaf, till  
all

all the Veins are blacked with the Ink; then laying the Leaf on a flat Board or the like, with the Backside upwards, clap a Piece of white Paper well moistened on the Leaf; and pressing it pretty hard, but not so as to bruise the Fibres, you shall have a fine Impression.

But this may still be done to greater Advantage by means of a Piece of Wood in the Form of a Cylinder, about a Foot long, and an Inch and a half diameter, the middle Part about six or eight Inches long, being covered with a woollen Cloth rolled three or four Times round it. With this Cylinder roll the Paper over the Leaf four or five Times backwards and forwards, and you will have a curious Impression.

But where Printer's Ink is not conveniently come at, the following Method may be made use of. Rub the Back of the Leaf, as before directed, with burnt Linseed-oil: Then, strewing some, Powder of black Lead, or for Want of that, some Charcoal or Small-coal-duft, or the Powder of burnt Cork, upon a smooth Board, so as equally to cover it, stroke the Powder gently over; and oiling the Back-side of the Leaf, clap it upon the Board; and then laying the white Paper upon the Back of the Leaf, press or roll it, as before.

If none of these Ingredients are conveniently had, take Vermilion, and mixing it with fresh Butter to the Consistence of Printer's Ink, cover your printing Ball with it: dawb it over the Back of the Leaf, and take your Impression as before.

Where Vermilion is used, Bice may also be made Use of, either with Butter or Oil, by grinding blue Bice with some burnt Linseed-oil, and using it as before: Thus, you may have a fine red or blue Ink proper for Impressions of this Sort, but the blue is preferable in colouring Leaves, because it is an agreeable Colour for the green Sort.

It may be observed that the Reason why the Back of the Leaf is the proper Side to make the Impression from, is because the Ribs or Vessels rise on that Side above the fleshy Part of it; and therefore being coloured with any of those Inks, they are the fittest to give an Impression, whereas in the Foreside of the Leaf, the fleshy Parts rise, and these fine Fibres are sunk between them.

VIII. *To take off the LEAVES of PLANTS in Plaster of Paris, so as that they may afterwards be cast in Metal.*

Those Persons who cast in Metal have frequent Occasion to use Leaves of several Sorts, in order to embellish their Work; these are generally made from Models done by the Hand, which take up a great deal of Time, and even at last are imperfect: But the following Way, which is communicated by a Gentleman from *Italy*, is greatly preferable, and much easier.

Soon after you have cropped the Leaf you desire to take an Impression from, lay it between the Leaves of a Book, till once it shall lie flat; then, upon a smooth Board with a strong Gum-water,

water, made of Gum-arabic, fix the Fore-side or Front of the Leaf to the Broad; when this is done, raise round it a little Wall of coarse Paste, half an Inch high; or, if you can conveniently, surround your Piece of Wood with Paste-board, or Card-paper, so close as that it shall hold a Liquid for some time; then oil the Back of your Leaf, as directed below in the Method for casting of Medals; and pour on Water and Plaister of Paris as is there directed, which, when it is dry, will give you an exact Impression of every Vein of the Leaf, and from which you may easily make a Mould to cast in as you fancy.

IX. *An expeditious Method of taking the Impression of any BUTTERFLY in all its Colours.*

Having taken a Butterfly, kill it without spoiling the Wings, which contrive to spread as regularly as possible in a flying Position; then, with a small Brush or Pencil, take a Piece of white Paper, wash Part of it with Gum-water, a little thicker than ordinary, so that it may easily dry; afterwards laying your Butterfly on the Paper, cut off the Body close to the Wings, and throwing it away, lay the Paper on a smooth Board, with the Fly upwards; and laying another Paper over that, put the whole Preparation into a Screw-press, and screw it down very hard, or otherwise press it, letting it remain under that Pressure for the Space of an Hour. Afterwards take off the Wings of the Butterfly, and you will find a perfect Impression of them, with all their various Colours mark

ed distinctly, remain upon the Paper. When this is done draw between the Wings of your Impression the Body of the Butterfly, and colour your Draught of the Body after the Life.

*X. To take off the Impression of MEDALS.*

This may be of Use to such as would preserve to themselves good Specimens or fine Draughts of curious Medals, especially as it is easily executed, and with but a trifling Expence.

One Way is as follows. Take Isinglass, and breaking it in Pieces, dissolve as much of it as is necessary over the Fire in a Quantity of Water sufficient only to cover it, taking Care to keep it stirring till the whole is dissolved. This done, with a Hair-brush, stroke some of the Glue over the Medals whose Impression you would take, after placing them as horizontally as you can, and when you have covered them perfectly all over, let them lie till the Glue is hardened; and afterwards with the Point of a Pin, or Needle, raise the Edge of the Glue from each Medal, and the whole Impression of the Medal in Glue will fly off as hard as a Horn, with all the fine Sharpness of the Medal as it was struck.

This Glue may be made of whatever Colour you please, by mixing the Colour in the Water the Glue is boiled in. The Impression must be dried immediately, but very regularly, and not in a hot Sun, nor in any damp Place.

If

If you use Ifinglass without any Colour mixed with the Water, you may, as soon as you take the Impressions from the Medals, breathe gently on the concave Side of them, and then lay them upon the thickest Sort of Leaf gold, which will stick to them; and by shining through the Ifinglass will appear like a Gold Medal: But if we would imitate a Copper-medal, we should mix Carmine with the Water that we dissolve our Ifinglass in.

Although Water may do very well for dissolving the Ifinglass in for this Purpose, yet Brandy or Spirits of Wine will give the Glue a much greater Strength, so as not to be subject to soften in a damp Air.

#### XI. *To take the Impression of large MEDALS.*

First rub the Medals gently over with a Tuft of fine Cotton moistened or greased with Sweet-oil; then having some melted Brimstone, enough to cover the Medal half an Inch thick, put a Hoop of Card-paper round the Edge of it, and pour the melted Brimstone on it, but not too hot; as soon as it is fixed and hardened, take off the Hoop of Paper, and the Impression on the Brimstone will come clean from the Medal, which shall serve for a sharp and correct Mould wherein you may cast another with Plaister of Paris. But Brimstone should not be used on Silver-medals, because it will effectually change their Colour. Therefore, to take Silver-medals off, bind them

round, after oiling them, with a Hoop of some stiff Paper, as before, and mixing a little Plaister of Paris with Water, fill the Hoop with it; then immediately fill the Case in a sprinkling Manner with the same Plaister, till it hardens; and when it turns dry, take it off from the Medals. But from those Moulds cast in Brimstone that are concave, you must again cast such Medals in Plaister of Paris, and they will be convex, oiling the Mould and using the Plaister of Paris as before. By this Method you may take off any Medal or fine Bas-relief with great Exactness, even so as to form Medals from them in any sort of Metal.

*XII. Another Way of taking off MEDALS is as follows.*

Procure some thin Pieces of Lead, and placing the Medal horizontally on the Top of a firm Post, or any steady Place; lay a Piece of harder Metal flat over the Lead; and place a Piece of a round turned Stick over that, such as is used in the Staff of a House-brush; saw off about five or six Inches in Length; and holding that tight, with the left Hand, on the Lead and flat Piece of Metal, strike the Top of the Stick a smart Blow with a large Hammer, and it will give the Lead a perfect Impression of the Image of the Medal. But this must be done by one single Blow to render the Impression perfect.

XIII. *Various Ways of taking off* MEDALS.

Take the Shavings of Paper, and boiling them till they are tender, pound them well in a Mortar, so as to reduce them into a Paste: then, boil them again in Spring-water with a little Gum-arabic: let this Mixture stand some time to settle: then pour off the Water, straining it through a Sieve or Linnen-cloth, and the remaining Part of this Mixture will be an excellent Ingredient either to press into any Mould, or upon any Medal: for when the Paste is dry, it will come off very sharp.

Some Medals that are under-wrought cannot be taken off this Way; therefore, in such Cases you should take common Glue, and melting it, fix a Hoop of Paste-board, &c. round the Edge of the Medal, and pour on the Glue hot; the Medal having been first oiled with a Tuft of greased Cotton.

When the Glue is dry and hard, take off the Hoop, and the Glue will fly off from the Edges: and it will, as being subject to bend and give Way, which the Things formerly mentioned are not, come very easily off. But the Glue ought to be made strong, and should be poured on one third Part of an Inch thick.

When an Impression has been taken by this Means, you must then hoop your Mould of Glue with either Card-paper or Pasteboard, as before directed,

directed, taking Care to oil it so that no Bubbles or Blisters may be seen; then you may cast your Plaister of Paris in it, and you will obtain, by these Means, a good Copy of the Medal. When this is dry, the Glue will fly off, or may be broken off, and there will remain a good Pattern to cast from.

Also, a Putty may be made of Linseed-oil and fine-ground Starch, which being well worked together into a Paste will take a good Impression from any Medal. By means of these Moulds you may cast good Medals of Bees-wax: but they will come off much sharper if the Mould be in Brimstone, than if it be in Plaister of Paris. But then your Wax should be as well blanched or whitened as if it was used for Wax-candles; however it will be necessary to grease the Mould before the Wax is poured in; and though white Wax is here recommended, yet it will not be best that the Copy of the Medal be white, because the darker Colours shew the Medal much better.

If you would have your Copy of a red Colour, mix Vermilion with the Wax, while it is melting; and if you would have it blue, put in Stone-blue well beaten, or ground, into the melted Wax.

As soon as these Wax-medals are cold enough to take off, you should lay some Leaf-gold upon them, pressing it down gently with a Piece of Cotton, without rubbing it backwards and forwards; and that will gold your Medal. When you cast Medals

in

in Plaister of Paris, to make them look like Steel or Metal, rub them over with a Tuft of Cotton lightly greased with Oil : then strewing over them some Powder of black Lead, rub them well with such a Brush as is used for the Teeth, till the whole is equally covered, and this will give them a fine Metal-gloss. You may make these Medals in Plaister of Paris look like Box, by boiling them in Linseed Oil; and this will harden them to such a Degree as to bear the Brush, to clean them when they turn foul, or dirty. If you would have these Medals look of a yellow Colour, boil a little Pearl Ashes in a Pint of Water, till it makes a strong Lixivium; then put in half a quarter of a Pint of French-berries: Boil this till the Liquor is of a strong yellow, and use it with your Plaister of Paris instead of common Water.

If you would have the Medals look green, the fine, transparent Gum of Verdegrease mixed with the Plaister of Paris, will give them that Colour; and for a Silver-Colour, Leaf-silver or Tin-foil may be used in the same Manner as the Leaf-gold for the Gold-colour: for the Copper-colour, German leaf-copper may be used.

#### XIV. *To take off Impressions in Plaister of Paris from COPPER-PLATES.*

Oil the Plates a little, and binding them about, either with Card or other Paste-board Paper, pour on them some of the finest Plaister of Paris and Water; and finishing the Work with Plaister till

it becomes dry and hardens, you will have a fine Impression or Draught of the Lines on the Plate in the Plaister, which you may make Use of to draw from as you may have Occasion.

XV. *To take off the fine Engravings from*  
WATCH-CASES, SNUFF-BOXES, &c,

Hold them over the Smoke of a Candle, till they are quite black; then wiping off the Black with the soft Part of the Palm of your Hand, lay a Piece of white Paper, a little wetted with a Sponge, over the Engravings; and over that clap a thin Piece of Flannel, or brown Paper pressed down very hard, which being rubbed, the Paper next the Picture will obtain as fine an Impression as if it had passed through a Rolling-press.



## PART II.

*The Doctrine of WATER-COLOURS,  
for illuminating Prints, &c. in the  
best Manner.*

## CHAP. I.

*Of COLOURS in General.*

COLOURS are to be distinguished as follows : the first is the White Colour; next, the Yellow; next the Orange; then the Red; after that, the Purple; afterwards, the Blue; and lastly, the Black. It is to be observed, that White and Black are the Extremes of Colour : Yellow is the lesser Point of Colour towards the White; the next to that is the Green; and after it the Blue.

With regard to the colouring of Prints, if the Paper be pure white, you are to use no Colour on it, unless in the shaded Parts; and then in painting of Flowers, if they tend towards a reddish Colour, you are to use a faint Colour of Carmine with Gum-water, upon the Shades only; if bluish, use a little faint Indigo in Gum-water slightly passed over the Shades, easily touching upon the Lights. Where there is a yellow Tinge, either use a faint Tincture of Gamboge, or of French-berries, which will be described among the Yellows: or if the Whites have a purplish Cast, use a thin Cake on  
the

the shady Side suffering the Colour only to shine a little into the Light, which will give a Lustre to the Whites; and if a greenish Cast should be there, use a very faint Colour of the Sap-green; or in Proportion of the Sap-green mixed with the Verdigrease-green.

All these Colours mentioned for shading the Whites may be found in the following Directions.

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## C H A P. II.

### W H I T E S *for Painting in Miniature.*

1. **T**HE best White sold for painting in Water-Colours is Flake-white: this is better than white Lead ground, and if it be pure far exceeds it in Beauty; because the white Lead is apt to turn blackish, especially, if it be used in a hard Water.

2. But some recommend a White made of Pearl and Oyfter-shells reduced into an impalpable Powder, so soft as to feel like Grounds of Starch, or Hair-powder: this is by some called Pearl-white, and will mix well with any Colour. But if you use white Lead, first rectify it with White-wine Vinegar, which causing a Fermentation, the White will soon settle; after which pour off the Vinegar, and wash the White with common Water. The Method of washing it is thus, Put the Powder into a Glass of Water; stir it about and presently pour off the Water, while it is white, into some other clean Glass, or Vessel: then letting it settle, pour off the Water from it, and  
you

you shall have an excellent White, to which, when it is settled, you are to put as much Gum-water as is necessary to give it a Glaze.

It is observable that white Lead will turn black if mixed with Water that comes from Iron or Clay; that is, in the Space of a Month or two, you may perceive those Places where it lies thickest tinged with black; and if it be mixed with any other Colour, it will soon change or alter it.

3. Some recommend the Powder of Egg-shells of the brightest Colour, and well cleaned and washed, as very good to be ground with Gum-water; or you may put a twentieth Part of clean white Sugar candied to grind with it in Water: it must be ground as fine as possible; that is, to the State of an impalpable Powder; and then use it. Some say it is better, if rectified Spirit of Wine be poured on it, which will clear it from any Dross that may be in it: this, it is probable, must be poured off, when the Spirit of Wine has done its Work; and then the Parts left behind must be mixed with Gum-water again.

But it has been found by Experience that Egg-shell Powder is of very great Service, as a White, in Water-Colours, and that itself and the Oyster-shell Powders, well rectified and mixed with the White of an Egg well beaten, will make an extraordinary Mixture in other Colours, and will correct them from changing or altering their Qualities.

4. As to a White for illuminating of Prints, the clear White of the Paper is to be left uncoloured, and

and if it happens that the Paper is apt to sink, or to spread any Water-colour that is laid upon it more than is necessary ; then the Way to correct it is as follows. Fix the Paper in such a Station as that it may only receive the Colour you lay on to glaze, just as far as you designed it ; then take some Starch boiled and prepared in Water, of a middle Strength, and with a large Painting-brush, stroke it over the Black of the Print ; and after it has been well dried in the Air, or Sun, put the Print in a Book with a Weight upon it, to take out the Crumplings which it may receive by wetting of it ; and thus will any Print be rendered fit to receive Water-colours, which will be prevented from running further than one would have them.

5. A fine White for Water-colours is made by dissolving Filings of fine Silver or Silver-leaf in Aqua fortis ; then evaporating the Aqua-fortis till it looks like Chrystals in the Bottom of the Glass : decant the other Part of the Aqua-fortis, and wash the Silver five or six times in common Water, till it is freed from the Aqua-fortis, which may be known by tasting it ; then dry it for Use. It must be used with Gum-water, and a little Water of Sugar-candy.

6. An incomparable fine white Lead-colour is made by grinding choice white Lead well upon a Porphyry with Vinegar, so that it turns blackish : then take a Pot full of Water, and washing the white Lead in it very well, let it settle ; and pouring off the Water, grind it again with Vinegar ; repeat this once or twice more ; and you will have

an excellent White both for Water-colours and painting in Oil.

7. *To make a good white for the ground, for Water or Oil colours, proper in Miniature.*

Take a Pound of Glover's Clippings, put them some time to steep in Water: then boiling them in a Kettle, with twelve Quarts of Water, till it sinks to two, strain it through a Linnen cloth into a new earthen Pan: this is called Glove-glue, or Size; and to know whether it be strong enough, it is only necessary to try, when it is cold, and has got its Consistence, whether it be stiff and firm under the Hand.

The Glue being made, take white Chalk, and reducing it to Powder, and melting the Glue, while it is hot, put such a Quantity of White in it, as to make it so thick as Pap: then leaving it to steep for a quarter of an Hour, stir it about with a Bristle-brush.

Then taking some of this White put more Glue to it, in order to make it brighter, for the first or second Lay: this must be applied by beating with the End of the Brush. Mind that you let every Lay dry well before you put on another. If it is Wood you work on, you must put on a Dozen; but if it is thick Paper, six or seven are sufficient.

This done, take Water, and dipping a soft Brush in it, and draining it with your Fingers rub the Work with it, in order to render it the smoother. When your Brush is full of White, you must wash it again; and also change the Water when it is too white. You may likewise sometimes

make

make Use of a wet Linnen-rag instead of a Brush. Your Work being very even, let it dry, and when it is so, rub it with Shave-grass, or a Bit of new Linnen-cloth, to make it soft and free.

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### C H A P. III.

#### *Of YELLOW.*

I. **T**H E R E are some Objects which have the Appearance of Gold shining through the Colours of Green, Red or Blue, such as some sort of Flies and Beetles, and the Cantharides. This golden Transparency is very well imitated by laying some Gold-leaf on the shaded Part of the Drawing, giving in a little to the light Side of the Print. The Way of laying on the Gold-leaf, is by washing the Part where the Gold is to be with strong Gum-water, and, when it is somewhat dry, by laying on the Gold as smooth and even as possible; pressing it down close with Cotton. But in doing this, Care must be taken that, in laying on the Gum-water, you do not exceed the Limits you would have the Gold appear to shine. In this Case the Gold is to shine only through the transparent Colour which is to be laid on.

It must be observed, that the Gold-leaf will not receive Water-colours regularly, and for that Reason it must be stroked over with a little thin Liquor of Ox-gall in a painting Brush of Camel's-Hair, by which Means it will receive any Colour that you have a Mind to paint upon it, and will hold it. The Greens may be first, the *Verdegrease-*  
green

green or Sap-green (which Colours should be described in their Places;) the Reds may be Lake or Carmine; the Purples, Lake and fine Indigo, or Carmine and Indigo; and for the Blues, Indigo on the dark side, and on the light a little Stroke of Ultramarine-blue, just to shine into the Light, which will have an admirable Effect.

2. There may be found upon Rose-trees, in *June* and *July*, a Kind of Beetle of a gold and green Colour, which may serve for a Direction in this Kind of Painting. But if Gold itself be used, it will be best to polish it, which may be done in the following manner.

There may be seen in some Manuscripts fine golden Letters which rise above the Surface of the Vellum or Paper: the Composition that raises them <sup>ow</sup> thus is said to be made up of Vermilion and the white of an Egg, whisked or beaten up to the Consistence of an Oil, and worked together like a Kind of Paste, and with a Stamp fixed to the Vellum or Paper with Gum-arabic. On this Figure of a Letter wash some strong Gum-water with a Pencil of Camel's Hair, observing that the Gum does not reach more than the Outlines; then lay on the Gold leaf close with some Cotton, and being dried, rub it with some dry Cotton; and then polish it with a Dog's-tooth: this will make it appear as if it was really cast in Gold.

3. There is besides this another Way of working in Gold, and that is performed by Shell-gold, but then it must be pure Gold, and not that brought from *Germany*, which turns green in a few Days  
Time.

Time. Before you use this Gold, cover the shady Parts with Vermilion; and after your Gold has been well rectified with Spirit of Wine, lay it on with Gum-water, which will readily mix with it; and when it is dry, polish it with a Dog's Tooth. In laying on Gold, it will be best to leave the Lights without it, because it will make a much brighter Appearance than if the Object was covered all over with it. But if, by Accident or otherwise, the whole Piece happened to be covered with Gold, there is no better Way to set it off, than by tracing over the shady parts with Gall-stone, or, what is much preferable, the Yellow made of French-berries, the Composition of which is treated of below: But it is the deepest that is to be used in this Way. A little Minium heightens it very much. How the Minium is to be rectified may be learned among the Reds. Observe to polish the Gold before you use the Minium on it.

After this Colour of the Gold, the Yellows shall be treated of as they fail gradually in their strength.

4. The first Yellow is a kind of Straw-colour, and is made of Flour of Brimstone, which of itself is fine enough to mix with Gum-water.

5. A common Way of illuminating Prints is by giving the Tincture of Gamboge for a Yellow; and this may be of two or three sorts, either fainter or stronger; the last to be a Shade to the first, and to be shaded with the Preparation of French-berries.

6. Mr. Boyle says, that if the Roots of Barberies are cut and put into a Lixivium made strong  
with

with Water and Pearl-ashes, there will be a fine Yellow produced from it ; this having been often tried succeeded very well.

7. He likewise proposes another Way for making a transparent Yellow, which is by boiling the Root of a Mulberry-tree, washed well from the Earth, in a strong Lixivium of Pearl-ashes and Water ; this will afford a yellowish Juice, from which may be extracted a Tincture much deeper than the former.

8. Yellow Oker will likewise make another good pale Yellow, but it is a Colour rather of too much Body for illuminating of Prints ; yet being well ground with Gum-water, it is of Use after it has been well washed.

9. The Plant Celandine will afford another good Yellow by infusing it in Water and pressing it gently, and then boiling the Liquor with a little Alum. This yellow will incline somewhat to Green.

10. But a yellow which some prefer to the rest, and may be used in several Capacities of Lights, is one made of French-berries, and prepared as follows. Boil two ounces of French-berries in a quart of Lixivium made of Pearl-ashes and Water, till the Liquor gives a fine tinge of Yellow to a bit of Paper dipped in it ; and then pour it off from the Berries ; let the Liquor cool, and bottle it up for use.

Then again, put a Pint of the same Lixivium to the Berries, and boil them till the Liquor is as deep-coloured as Gall-stone, and this will be fit for the Shade of any sort of Yellows you can use. This may be boiled till it produces a brown Colour ; and will, with a little Ox-gall, serve to shade

shade any Leaf-gold that is laid on Paper, and is much preferable to Gall-stone in imitating any Gold-colour; and it answers well upon a Tincture of Gamboge, or any of the former Yellows.

11. Next to this may be reckoned the Tincture of Saffron in common Water only, which affords a bright reddish Yellow, such as would be required for an Orange-colour, in covering the shadowed Parts of a Print; and when Saffron is infused in rectified Spirits of Wine, there is nothing higher: but then it will fly, unless it be loaded with Gum-arabic.

12. As for a deep Yellow, with a Body, Dutch Pink comes the nearest of any to the forementioned strong Yellow made of French-berries in point of Colour: but the English Pink, which is still made of French-berries, is of a lighter Yellow.

13. Also, a good yellow Colour for illuminating Prints may be extracted from the Roots of Ginger; and with transparent Verdegrease it makes a fine Green.

It is to be observed that the English and Dutch yellow Pinks are made with French-berries ground to a fine Powder and boiled.

#### C H A P. IV.

##### *Of ORANGE-Colour.*

**A**N Orange-colour for washing Prints is made by laying on a Teint of Gamboge; and over that some Minium or red Lead washed, and rendered fine and fit for Use; it not being fine enough

to paint with as it is bought at the Shops; and besides it will change, or turn black in a few Weeks, if it be not refined; but being well prepared, it will be very lasting and beautiful. But this you must take Notice of, that an Ounce will not produce above twenty Grains of a good Colour to stand the Test of Painters. This Colour may be mixed with Gamboge upon a white Dutch Tile, to render it of the Teint you would have it, either softer or stronger; or else the Gamboge may be glazed over, and strengthened with the Tincture of Saffron, which will make it glare into a strong Orange.

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#### C H A P. V.

*Of MINIMUM, the brightest RED LEAD; the Manner of preparing it.*

**T**HE Minium or red Lead is as heavy and strong a Colour as most we have; and prepared, is the most beautiful one, when it is well washed and cleansed of its more weighty Parts, which cause it to turn black.

Mr. *Boyle* directs the preparing, or cleansing it in the following manner. Put four Ounces of it in a Quart of Rain-water; then stirring it, pour off the Water immediately, and let it settle to the Bottom of every Cup or Glass you pour it into; then pouring off that Water, in a Day's Time you will have the Colour dry, and as fine as can be desired. Afterwards put a little Gum-arabic into each Glass or Cup, and as much Water as will moisten each of them.

Any

Any of these may be afterwards used with Gum-water; but if the Gum you put in it at first make it strong enough to glaze it, then you need only add to it common Water; and according as your Colour is less or more gummed, use less or more Gum-water; for it is of itself a dead Colour. When you use this Colour, touch it gently on the Yellow above-mentioned that is made of the yellow Berries, into the light Side; and if it wants a Shade, you may put a little Vermilion upon it; but Vermilion is too heavy to paint with, when you would illuminate your Prints, because it hides the Shades of the Engraving, though sometimes they had better be hidden than appear; some generally shade this Minium with Carmine, which gives it a fine Effect, and renders it equal to the brightest red Flower that is to be seen; leaving still the Lights uncoloured, only dashing a little Way into the Lights with the Minium.

When the Carmine has shaded the Minium, it may be shaded again with Lake in the strongest Part to bring it to a deeper-red.

## C H A P. VI.

### *Of other REDS.*

#### I. *Scarlet-Red.*

**S**CARLET may be represented on a Plane with Minium a little mixed with Vermilion; but if you have Occasion to paint a Flower of a Scarlet-Colour on a Print, let your Lights as well as Shades be covered thin with Minium; and the shaded  
Parts

Parts glazed with Carmine, which will produce an admirable Scarlet, such as is seen in the Flower Scarlet Martagon.

2. *Crimson-Red.*

A Crimson-colour is represented with Carmine, but it is necessary that the Buyer be informed that there are several Sorts of it; some darker, and some much coarser than others: therefore it should never be bought by Candle-light, unless of such as a Person can confide in: for between the best and the worst there is ten Shillings an Ounce Difference: nay indeed all the Money that an Ounce will cost, because bad Carmine will but spoil the Work.

3. Next after Crimson comes Lake, which is of use in shading and heightening Carmine. But it must be observed that in laying of Carmine upon a Print, you must touch your Lights only with such a thin Teint of it as can scarcely be observed; laying it on strong just on that Part of the Light which centers upon the Shade, and afterwards laying some Lake on the stronger Part of the Shade.

Lake is to be had in most Colour-shops ready prepared in Shells for Water-colours.

To make a fine Lake, take half a Pound of good Brazil, and boiling it in three Pints of Ley made with the Ashes of Vine-twigs till half the Ley be evaporated, let it settle, and then strain it; which done, boil it again with fresh Brasil, a quarter of a Pound; Cochineal, two Ounces, and Terra Marita half an Ounce, adding a Pint of fair Water. Let this boil till it be half evaporated

as before : then set it by to settle, and strain it. But when you take it off the Fire, remember to put in an half Ounce of calcined Alum, reduced to an impalpable powder, and dissolve it, by stirring it about with a Stick, adding a quarter of a Dram of Arsenic.

In order to give it a Body, reduce two Cuttle-fish Bones to a very fine Powder, and putting in the Powder, let it dry up at Leisure. Then grind it with a good Quantity of fair Water, in which leave it to steep, and afterwards strain it through a Cloth ; and making it up into a few Tablets, or Cakes, set it to dry on a Card, or Paste-board. If you would have this Lake redder, add Lemon-juice ; and if you would make it deeper, add Oil of Tartar.

Another Lake may be made as follows. Boil Shavings or Shearings of Scarlet in a Ley of the Ashes of burnt Tartar : this Ley having the Property of separating the Dye from the Scarlet Shreds. When it has boiled enough, take it off, and putting in Cochineal, powdered Mastic, and Roch-alum, boil the whole again, and while it is quite hot, strain it two or three Times through a fine Bag ; the first Time the Bag must be squeezed with two Sticks from the Top to the Bottom ; then the gross Matter remaining being taken out of the Bag, wash it well. After this pass the Liquor you expressed with the Sticks through the Bag again, and you will find a Paste sticking to the Sides of the Bag, which you may either spread upon a Paste-board, or divide into small Parcels upon Paper and set it aside to dry. To

To make Lake-columbine, steep half a Pound of the finest Brazil-wood of Fernambuca rasped in three Pints of the finest distilled Vinegar, for at least a Month, the longer the better. After which seethe the whole in Balneo Mariæ, till it boils up three or four times; letting it settle for a Day or two. After this, prepare a fourth Part of powdered Alum, and putting it in a clean earthen Pan, strain the Liquor upon the Alum, and so let it remain for a Day. Afterwards heat the whole again till the Liquor simmers, and let it settle twenty-four Hours; then reduce two Cuttle-Fish-bones into Powder, and having warmed the Liquor, pour it in upon them, and stir it about with a Stick till it be cold, and leave it again for twenty-four Hours before you strain it. Remember that it must be first strained upon the Alum, before it is poured upon the Cuttle-fish-bone.

4. But a liquid Colour not much inferior to Carmine itself may be made of the Raspings of Brasil-wood: this Colour is the transparent Crimson, and is made as follows. Boil an Ounce of the Raspings of Brasil-wood, sold at the Dry-salter's and at some Colour-shops, in twelve Ounces of pale stale Beer and a little Alum, till the Colour of the Liquor is as strong as you please, which may be discovered by dipping a Slip of white Paper into it. When this Colour is as you would have it, pass it when cooled into a Linnen-cloth, and bottle it up for Use.

And if you would bring this Colour to a Body, take Ox-blood, and dry it till it can be reduced

to a Powder, which being done, mix it with the Liquor, and it will communicate a Colour to it little inferior to a middling Carmine: some say that the Blood of an Ox or Cow dried will make a good Body for any Colour.

5. *A Crimson Colour from Mr. Boyle.*

Take the Fruit of the Berry bearing Spinach, which being pressed, will yield a beautiful red-coloured Juice; boil this, adding a fourth part of Alum to it; then letting it cool, put it up for Use.

6. The red Beet-root baked with a little strong Vinegar produces an elegant Red-colour equal to a Tincture of Carmine: then pour it on Alum, and it is fit for use, where Carmine should be used in washing Prints, for it is a fine transparent red.

7. *Another Crimson Colour for washing Prints, &c. is prepared as follows.*

Put thirty or forty Grains of bruised Cochineal into a Gallipot, with as many Drops of Tartar-ley as will just wet it and make it give forth its Colour; then immediately adding to this Mixture half a Spoonful of Water, or more, if the Colour be still too deep, you will have a delicate purple-liquor or Tincture. Then taking a Bit of Alum, scrape very finely with a Knife a small Quantity of it into the Tincture, and this will take away the Purple colour, and make it a delicate Tincture. Strain it through a fine Cloth into a clean Gallipot, and use it as soon as you can, because this is a Colour that will always look exquisitely fine if it is soon made use of; but will decay if it stands long.

8. *Indian Red.*

Next to these is the Indian Red, which though it is a Colour of a Body, yet is useful for a back Ground for Flowers at a Distance, when used with Gum-water.

9. There is also an Earth brought from the Isle of Wight which has been found to mix extremely well with Gum-water, though being of a viscous Nature, it requires less Gum than most other Colours; and as it is naturally fit for Use without grinding, and is viscous, so it will no doubt mix with Oil as well as with Water. There is one Thing very extraordinary in this Earth, which is, that if you rub a Deal-board with it, it will make the Board exactly of the Colour of Mahogany-wood, and stain it so deep, and with so much Strength, that it is hard to get it out with washing.

## C H A P. VII.

*Of PURPLE.*

**A** Fine transparent Purple may be made either redder, or nearer the blue, as you would have it, by boiling four Ounces of rasped Brazil-wood in a Pint of stale Beer, with half an Ounce of Logwood, or Campeachy-wood, till the Liquor is heightened to the Colour you desire, which may be known by dipping a Piece of Paper in it.

If you find it too red, add an Ounce of Logwood to the Brasil-wood, which will make it much near-

er to the Purple than the former ; and by this Method you may humour it to any Degree of Purple, by putting in either more or less Log-wood to the former Composition, and fixing the Colour with Alum.

This will produce such a clear Purple as no Mixture of solid Reds and Blues will do, and the Receipt has been for a long Time kept secret. It is said, that the best purple Colour that can be made may be composed between the Carmine and Indigo, to strengthen which, on the red Side, you may add Lake between the lighter and darker Part ; and so Lake, when it is used in the same way on the foregoing Purple, or the liquid Crimson, produces a very fine Effect.

The Colour may be varied, and made either redder, by putting more Carmine, or bluer, by using more Indigo, which, being mixed on a white Dutch Tile, will shew itself.

A fine Purple-colour may be made of the gross Part or Sediment of Lake-columbine, both for Oil and Water-colours, as follows.

Take the Sediment of Lake-columbine which falls to the Bottom of the Vial in which is the Bone of the Cuttle-fish. Let it dry, and grind it ; there will be no Lake so fine as this ; and if you mix it with Lake, it will give it a better Body, besides more Strength and Vigour.

I. **T**HE Ultramarine-Blue is not only the first but the best Sort of bright Blue we have, as it gives a Spirit to all Paintings where Blues are used. This Colour is made from the Lapis Lazuli divested of its Gold, and ground into an impalpable Powder, which is done as follows. Take half a Pound of Lapis Lazuli, and putting it upon red-hot Coals, let it stay there until it is red-hot: then quenching it in very strong Vinegar, and grinding it upon Porphiry, or any such hard Stone, with rectified Brandy to an impalpable Powder, make a Pastil with which the Lapis is to be incorporated: for the making of this Pastil take Bees-wax, Turpentine, Rosin and Linseed-oil, of each a quarter of a Pound; and melting the whole together over a slow Fire, when it begins to boil, pour it into a glazed Pot: this is the Paste of Ultramarine. Take of this Paste a Quantity equal to that of the Lapis, knead them together upon the Marble, and being well incorporated, let them remain for one Night; after which, to bring out the Ultramarine that is in the Paste, pour clean Water upon it, and knead it with your Hands as Paste is kneaded, and the Ultramarine will come out; for the receiving of which, place a Porringer or other proper Vessel under your Hands, and let it settle in this Water till you see the Ultramarine at the Bottom of it.

If your Colour seems to be clammy or nasty, you may correct it thus: Add thereto Tartar, dissolved

in Water, as much as will drown it, and let it rest for one Day at least; then wash it in warm Water, and you will by that means have it correct and well purified. Ultramarine must be chosen of a high Colour and well ground, which may be known by putting it between the Teeth; for if it feels gritty it is a Sign that it has not been well ground.

To know whether it be pure and unmixed, put a little of it into a Crucible, and heating it red-hot, if the Powder does not change its Colour after Trial, it is certainly pure; but, on the contrary, if there be any Change or black Specks in it, then it has been adulterated.

2. The Prussian Blue is next to Ultramarine in Beauty. ~~it is best used in Oil.~~ though it is not agreed on whether it will hold so well as the other, particularly as not having the Body of the Ultramarine. The Prussian Blue does not grind well in Water, because there is such an oily Quality in it that it does not mix kindly with Water, and at the best will change, as it is now prepared in the common Way. Attempts have been made to make it a blue Ink, which indeed has held the Colour for a Month or two, but then turned to a muddy yellow. And when you put your Pencil with Gum-water, into a Shell of this Blue, you will find that where the Water spreads the Blue will turn yellowish, till the Body of the Colour is well stirred up; and after all that can be done with this Colour in Water, it will only serve to shade Ultramarine with:  
but

but in Oil it may serve very well, for the present, to supply the Place of Ultramarine.

3. Blue-bice is a Colour of good Brightness, and is the next to the Prussian Blue. It is also a Colour of a good Body, and will flow pretty well in the Pencil, especially if it be well washed, as is directed to be done of the Whites and Minium.

4. Saunders-Blue is also of very good Use, and may serve as a Shade to Ultramarine, or the Blue-bice, where the Shades are not required to be very deep, and is of itself a pleasant Blue to be laid between the Lights and Shades of such a Flower as is of a Mazarine-blue.

5. The Lacmus or Litmus-blue is another beautiful Colour, and will run in a Pen as free as Ink: being made of Lacmus, or, as some term it Litmus, which is sold at most Druggists-shops. But as this Colour is never to be met with prepared for Water-colours, we therefore shall give the following Method of preparing it, according to Mrs. *Mariana*. Take an Ounce of Lacmus, and boil it in about a Pint of small Beer-wort, till the Colour is as strong as you would have it; then pour off the Liquor into a Gallipot, and let it cool for Use: it will soon become a Jelly, and by Degrees will grow hard.

But this Colour is to be opened again and made liquid by Water, so as to be used in Ink, and will be either paler or darker, as it is made thicker or thinner. This affords a bright Colour and has extraordinary Effects: for it is not only a beautiful

but a holding Colour. This Colour, if it be touched with Aqua-fortis, immediately changes into a fine Crimfon, little inferior to Carmine, and finks quite through the Paper, fo as not to be got out; fo that when it is ufed as a Blue, it is beft to keep it from Aqua-fortis, or fuch ftrong Acids. It is a good Shade for Ultramarine or Blue-bice, where the ftrongeft Shades fhould not be extremely deep; and for colouring of Prints it is very good, as it is a transparent Colour, and goes a great Way.

6. Indigo-Blue makes the ftrongeft Shade for Blues of any other, and is a foft warm Colour when it has been well ground and wafhed with Gum-water, by means of a Stone and Muller. It is made of what Lightnefs you please, by putting more Gum-water to it; and by how much the lefs Gum-water is put to it, the darker it will be. Before you ufe it upon a Print, it will be proper to try it upon a Dutch Tile; for it runs warmly in the Pencil, and fo perhaps may otherwife prove too ftrong for your Design, which is always to be taken Care of, when a flowing Colour is to be laid over the dark Shade of a Print; which Shade will much heighten its Blacknefs, and even make it appear quite black.

7. *A fine Blue from Mr. Boyle.*

Take of the blue Leaves of Rue, and beating them a little in a ftone-mortar with a wooden Pef-tle, infufe them in Water, Juice and all, for fourteen Days or more, wafhing them every Day till they

they are rotten; and at last beat them and the Water together till they become a Pulp, and let them dry in the Sun.

This will produce as good Blue as Indigo, and be much softer; but in order to keep it a long Time, when you beat it the last Time, add a little Powder of Gum-arabic to it, of which you may put more or less as you would have it more free or tenacious in the working. This is an excellent Blue for shading, has a good Body and runs warm in the Pencil.

8. *A transparent Blue from Mr. Boyle equal to Ultramarine.*

This is a beautiful Blue, the chief Ingredient of which is the Cyanus or blue Cornbottle-flower. This Flower has two Blues in it, one of a pale Colour in the larger outward Leaves, the other of a deeper Colour in the inner Leaves, or Middle of the Flower. Both these will do, being separated from the Buttons and Cases they grow in; but the deep blue Leaves in the Middle produce by much the best Colour; this may be observed by rubbing the Leaves while they are fresh, so hard upon a Piece of good writing Paper, as to press out the Juice, which will yield an excellent Colour that will not fade for several Years. This Part of the Flower is therefore the principal, and what may be depended on, and should be picked from the rest of the Flower-leaves the same Day it was gathered, or as soon afterwards as possibly can be. A good Quantity of these middle-Leaves

being procured, press out what Juice you can from them, and adding a little Alum to it, you will have a lasting transparent Blue of as bright a standing Colour as can be desired, scarce inferior in Beauty to Ultramarine, and very durable.

As for the outward Flower-leaves, which are much paler, it is not certain that they will answer the End, but some Trials may be made whereby that may be known also. Let the Flowers be gathered about the Beginning of *June*, or in *July* or *August*, but the Preparation of the Colour, by picking out the middle deep blue Flower-leaves, and pressing out the Juice, must be done with all the Expedition possible, or else they will lose their Perfection.

It is probable that if the Leaves of these blue Cornbottle-flowers were cured in the same Manner as Saffron is, they would produce a much greater Body of Colour, from which a Tincture might be drawn with more Ease, than if pressed raw or fresh from the Field.

In order to do this such a Kiln must be prepared as is used for curing of Saffron, in which may be made a small Charcoal-fire that may communicate a Heat to the Top of the Kiln, which is to be covered with a Hair-cloth; upon this should be laid four or five Sheets of white Paper, such as is used in curing of Saffron: afterwards a Parcel of the picked Flowers are to be laid on to the Thickness of two or three Inches, laying them close and flat with a Knife, and sprinkling them with some Gum-water. Then the Cake of Flowers is to be covered

covered with two or three Sheets of Paper, and a Board, with a small Weight laid on for a few Minutes; after which the Board is to be taken off, and the Cake of Flowers to be turned on the Kiln, taking hold of all the Papers with both Hands; and when it has been rightly placed, take off the upper Papers, and sprinkle the Cake a second Time with some Gum-water; then settling the Cake again with a Knife, let the Papers be laid on as before, with the Board and Weight for a Minute or two; after which let the Papers be turned again and again till the Cake of Flowers becomes united, and of the Thickness of a Cake of Saffron.

In this Operation you will find the Flowers grow darker and darker every Time they are turned, till at length the Cake will look of a deep blue tending to black, from whence a Tincture may be easily drawn. During this Operation great Care should be taken that the Fire does not scorch the Flowers, but that it be as constant and gentle as possible, which will be a sure Way to bring the Cake to a good Colour.

But it will not be improper for any Person who shall undertake the curing of this Colour to consult the Methods of curing Saffron, of which they may be informed either in a Treatise of the Method of curing Saffron written by Mr. *Dowglas*, or in another by Mr. *Bradley* in his monthly Treatise of Husbandry and Gardening.

## C H A P. IX.

*Of BLACK.*

**T**HE proper Black for Water-colours is Ivory-Black, which, if pure and well ground, is of Use in Painting in Miniature, but it is not proper for colouring Prints; being too heavy a Colour, and hiding the beautiful Strokes of the Graver, unless done with great Care: however, if it be necessary to use black for darkening a Print, rather choose a strong Tincture of good India Ink than the Ivory-black; but to colour Pieces in Miniature use the Ivory-black prepared as follows.

Grind the Ivory-black well in Gum-water, till you perceive a Kind of oily Liquor settle to the Bottom: this Liquor mix with as much of the Ivory-black as you think will be proper to make it flow freely in the Pencil, and it will bear an extraordinary Gloss; and if the Object is shining, such as the Wings of some Beetles, mix with some of it a little white upon a Dutch glazed Tile, till you find it light enough to receive the Shade; and then make another lighter Mixture of the same, which being used on the brighter Part of the Subject will produce the Effect you desire.

## C H A P. X.

*Of GREENS.*

- I. **G**REENS are allowed by all to depend upon the yellow and blue; and any green Colour,

lour, whatever you please, may be made with them. Gamboge is one of the first Yellows, which may be made to produce five or six Greens with Verdegrease, according as the Gamboge is in the greater or lesser Proportion; if it abounds it will make a tolerable Oak-green; and being mixed with a greater Quantity of Verdegrease, it will make a fine Grass-green.

2. But the Yellow which some prefer before all others is made of French-berries (as already described under the Yellows) which is either deeper or fainter as the Liquor they are boiled in is more or less stained with them; if it be very thin, it makes a good Glaze all over the Verdegrease, and as it approaches nearer to Dutch-pink or Gall-stone, commands almost any Colour we want; being agreeably mixed with the transparent Verdegrease; and is still transparent.

3. In like manner, a yellow drawn from the Roots of Barberries, and also that drawn from the Roots of the Mulberry-tree, will in a great measure produce the like Effect, being mixed with the transparent Verdegrease. As for the Verdegrease itself, it produces a fine bluish Green, flows easy in the Pencil, and may even serve as an Ink to write with.

4. The way of preparing the transparent Verdegrease is as follows. Take six Ounces of common Verdegrease, (the distilled Verdegrease not answering this Purpose so well) break it into little  
 Pieces,

Pieces, and boil it gently in a Quart of White-wine-vinegar, keeping it continually stirring, and, when you perceive it to boil, add a little Tartar broken; and continuing still to stir it till you find the Liquor of such a Colour as you would have it, that is, till it is of a fine transparent green with a bluish Cast, which you may know by dipping in a Bit of white Paper, then pour it through a Linnen-cloth into an open Vessel and set it to cool; and when it is quite cold, bottle it up for Use. Remember to cork the Bottle close, for being exposed to the Air it will dry; however, it may be reduced again by common Water.

This Liquor should be touched upon part of the Lights and Shades of a Print, and the Shades afterwards coloured with Sap-green.

In the making of this Green, remember that it be strong enough, because it cannot be strengthened afterwards without the Trouble of boiling it afresh: but may at any Time be rendered as faint as you please by mixing common Water with it.

5. Sap-green is a Colour like that of an Oak-leaf, if it be used thin with common Water: for this as well as the former wants no Gum: but if it be used strong it will produce as dark a Green as any. It will be proper to try the Colour first upon a white Dutch Tile; and by thinning it with Water you may render it of what Strength you please, and may brighten it very much by the Addition of a very little Verdegreafe.

There

There are two Ways of making Sap-green, *viz.* First, take the Flowers of blue Flag-iris or Flower de Luce, and press them while there is any Juice to be got from them; boil this gently in a glazed Pipkin, till it grows thick, adding a little Alum to it, and it will make a very useful and lasting Green.

You must observe this, that in the boiling of any Juice, &c. of the Colours before mentioned you should always do it in an earthen Pipkin; for if it be boiled in Vessels of Metal they will oftentimes change it from the Colour intended.

The second Way to make a Sap-green, for the washing and illuminating of Prints, is to take the Juice of Buckthorn-berries, and though that Juice simply will yield only a dark Purple of a very base Hue, yet either of these Colours will mix with the liquid Verdegrease above-mentioned, and will make a delicate Shade for it.

6. There is besides these another Green, which is admired by some Persons, that carries a good Body with it, and a Degree of Transparency too, (as it may be made) but, as it is commonly used, is a Colour of a full Body and fit only for painting in Miniature. This is made by mixing Dutch Pink with Indigo to what Degree of Colour you please: but the high Preparation of French-berries with Indigo is much to be preferred to Dutch Pink, especially as this answers all the Intentions of Dutch Pink, and carries a Transparency with it which the Dutch Pink has not.

## C H A P. XI.

*The Use and Nature of dry COLOURS.*

1. **B**LUE-bice is the most excellent Blue next to Ultramarine, which is too good to wash withal, wherefore we leave it out here, because Blue-bice may do very well instead of it; and indeed both may be left out, since Smalt may be used instead of them: however, it will not work so well as Blue-bice, which without doubt is too good to use upon all Occasions; only when you intend to bestow some Cost and Pains upon your Work: otherwise, you may use no other Blue in your Piece than Blue-verditer, with which you may make a very good Shift without any other Blue, that is, in any ordinary Work.

2. Indigo is a dark Blue that is used principally to shade with upon other Blues. Indigo and yellow Berries mixed together make a dark Green; to shade other Greens in the darkest Places.

3. Blue-verditer is a very bright pleasant Blue, and the easiest to work in Water: it is somewhat inclining to a Green; and, being mixed with yellow Berries, it makes a very good Green: this is the Blue most used.

4. Verdegrease is a good Green but subject to decay; when it is dry upon the Paper it will be of a lighter Colour than it was when first laid on: therefore to preserve it from that Fault, put some Sap-green among it, to dissolve in it, which will make it keep its Colour. There is a distilled

Verdegrease

Verdegrease to be bought at the Shops that is a far better Green than the other, but it is somewhat dearer and the other may serve instead of it.

5. Verditer-green is a light Colour seldom used in any Thing but in colouring Landskips, and those Places that should appear afar off; and it is good for such a Purpose, because it is somewhat inclining to a Blue, but you may make shift to do any thing well enough without it, for a little Blue-verditer mixed with Copper-green and a little White make just such another Green.

6. Sap-green is a dark, dirty green, and never used but to shadow other Greens in the darkest Places, or else to lay upon some dark Ground behind a Picture which requires to be coloured with a dark Green; but you may do without this Green, for Indigo and yellow Berries make just such another Colour.

7. Copper-green is an excellent transparent Green, of a shining Nature, if it is thickened in the Sun or upon a gentle Fire; and it is the most used of any Green in washing, especially in colouring of the Grass, Ground, or Trees, for it is almost Grass-green.

8. Vermilion is the most perfect Scarlet-colour: you need not either grind or wash it; being fine enough itself; only temper it with your Finger in a Gallipot, or Oyster-shell, with Gum-water, and it will be ready to use: if you put a little yellow

yellow Berries among it, it will make the brighter Colour; this is principally used for Garments.

9. Lake is an excellent Crimfon-colour, with which you may shade Vermilion, or your yellow Garments, in the darkeft Places; and being mixed with white, you may make a Sky-colour with it; or a Flefh-colour, by mixing white and a littlered Lead with it; and it is an excellent Colour of itfelf for colouring Garments, or the like.

Indian Lake is the beft Lake, but it is too good to be used in washing Prints with, unlefs you intend to beftow great Curiofity upon your Work; for the beft Sort of ordinary Lake will ferve well enough for ordinary Ufes; and this alfo will be fomewhat too cofly, therefore inftead thereof you may ufe red Ink thickened upon the Fire, which may ferve your Purpofe very well, better even than Lake unlefs it is very good.

Obferve, that if you would make a light Sky-colour of your red Ink, or if you would mix it among your Flefh-colour, you muft not thicken it; but shade your Vermilion rather with Spanifh-brown than thick red Ink, as it may ferve very well for that Purpofe; but is not altogether fuch a bright and clear Colour.

10. Red-Lead is the neareft to an Orange-colour, and putting a little yellow Berries into fome of it, will make a perfect Orange-colour: but if you defire to make a Flefh-colour of it, you muft put no yellow in it. This Colour is used in  
colouring

colouring Buildings or Highways in Landships, after being mixed with a little white. Besides, this is the only bright Colour to shade yellow Garments with, in order to make them look like changeable Taffaty. It is good also to colour any light Ground in a Picture, taking only the thin Water of it; and so for several other Uses, as you shall see Occasion.

11. Yellow Berries are most used in washing of all other Colours: they are bright and transparent, fit for all Uses, and will be sufficient without the Use of any other yellow.

12. Saffron is a deep yellow, if you let it stand a good while: it is of Use principally to shade yellow Berries with instead of red Lead; and it is somewhat of a brighter Shadow: but you may make a Shift well enough without this Colour, for red Lead and yellow Berries make just such another Colour.

13. Masticote is a light yellow just like yellow Berries and white; and therefore you may do well enough without it, only for saving you the Labour to mix your yellow Berries with white, when you have Occasion for a light yellow; then you may make use of it to colour a light Ground in a Picture; in which Case, shadow it with the Water of burnt Umber or red Lead; that is, the thinnest Part of the Colour.

14. Ceruse is the best white, if it be good and finely ground: or, for Want of it, white Lead  
picked:

picked: either of these will serve well enough; for either of them being mingled with another Colour will make it lighter, and the more so in proportion to the Quantity of either mixed with it.

15. Spanish-Brown is a dirty brown Colour, and of no great Use to colour any Garment with, unless it be an old Man's Gown, or to shade Vermilion, or lay upon any dark Ground behind a Picture, or else to shade yellow Berries in the darkest Places, when you want Lake or thin red Ink.

It is the best and brightest Colour, when it is burnt in the Fire till it be red-hot, though if you would colour a Hare, Horse, Dóg, or the like, you must not burn it, but for other Uses it is best when burnt: for Instance, to colour any wooden Post, Bodies of Trees, or any Thing else of Wood, or any dark Ground in a Picture. It is not to be used about any Garments, unless you would colour a number of old Men's Gowns or Caps, standing together, on Account they must not be all of one Colour: therefore for Distinction and Variety's Sake, you may use Umber unburnt for some of them.

16. Printer's black is most used, because it is easiest to be had, and serves very well in washing.

You must observe that you are not to put any Black among your Colours to make them dark, because it will make them dirty: neither should you shade any Colour with black, unless it be  
Spanish-

Spanish-brown, when you would colour an old Man's Gown or the like, that requires to be done of a sad Colour.

17. Ivory burnt, or instead of that, burnt Bone is the best Black, and is thus made; take Ivory, or for Want of it some white Bone, and put it into the Fire till it be thoroughly burnt; then taking it out and letting it cool slit it, and taking out the blackest part of it in the middle, grind it for use.

## C H A P. XII.

*Directions for making Gum, Alum, or other Waters.*

### I. To make GUM-WATER.

**T**AKE an Ounce of fine white Gum-arabic, and half an Ounce of clear, white candied Sugar; dissolve these in a Quart of fair Water; then passing it through a fine Sieve, or a Piece of Muslin, bottle it for Use; and, as you have Occasion to use it, pour out a little at a Time, remembering to keep it clear; for if it should prove dirty or foul it will spoil your Colours. By adding a little Coloquintida to the Solution of the Gum, &c. it will prevent the Flies from spoiling your Work, if it should chance to be exposed.

Or Gum-water may be made thus. Pour a Quart of pure Spring-water into a Jar-glass, and hanging in it, tied up in a fine woollen Rag, a  
sufficient

sufficient Quantity of pure white Gum-arabic bruised, let it hang till the Gum is dissolved: then putting your Finger into the Water, if you find them stick together, as if they were glued, your Water is too strong or full of the Gum; and therefore you must put more fair Water to it; and, if you find it too weak, you must put in it more Gum; adding, if there is any Occasion for it, the Coloquintida as before.

With this Water most of the Colours are to be tempered; and with so much of it, as that being touched when dry the Colour will not come off. It is to be observed that if the Colour glisters there is too much Gum in it.

## 2. *To make* ALUM-WATER.

Boil four Ounces of Alum in a Pint of fair Water, till the Alum is dissolved; or thus, to two Quarts of Spring or Well-water, put half a Pound of powdered Roch-alum: dissolving it well by boiling; then filtering it through brown Paper, keep it up for Use.

Wet your Paper with this Water before you lay on any of your Colours, and it will prevent them from sinking in, and will besides add a Lustre and Beauty to the Colour laid on. But you must take Notice that if the Paper is not good it must be washed over four or five Times with a large Brush or Pencil; remember also that Alum  
raises

raises standing Colours, and preserves them from fading.

If you design to varnish your Prints after they are coloured, then wash them all over equally with white Starch, before you colour them, and that being dry, lay on your Colours.

### 3. *To make LIME-WATER.*

Take some unslacked Lime, and covering it an Inch over with fair Water and so letting it remain for twelve Hours, pour off the clear Part of the Water, and keep it for Use. By washing with this Water you may change your Sap-green into Blue.

### 4. *To make PEARL-ASHES WATER.*

Take about half an Ounce of Pearl-ashes, and steeping this Quantity for twelve Hours in Rain or River-water, pour off as much of the Water as is clear, and you will find it of excellent Use with Brasil-wood in giving its Colours an enlivening Lustre.

### 5. *To make SIZE for Water-Colours.*

Take half a Pound of the Cuttings of white Gloves, and steeping them in Water for some time, boil them with six Quarts of Water, till it be consumed to one; then strain it through a Cloth into an earthen Pan.

If, when the Size has stood till it is cold, it feels firm under your Hand, then it is sufficiently  
strong

strong. You may prepare any Colours with this Size, while it is warm, after dissolving it. The principal Use of it is to prevent Colours from shining by Candle-light as they would do if mixed with Gum-water; on this Account the Scenes of Play-houses are painted in Size.

*F I N I S.*

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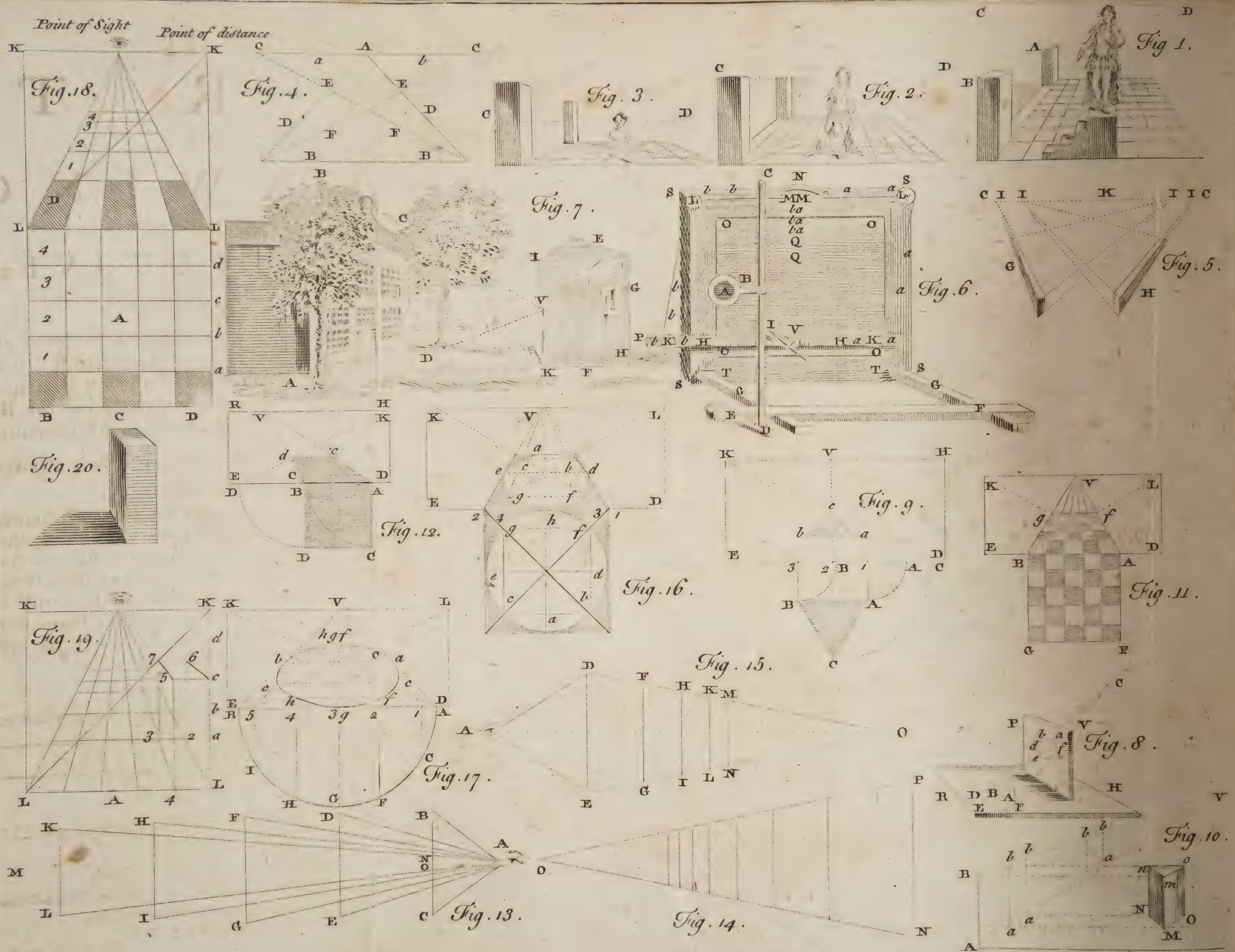












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THE  
ART  
OF  
DRAWING  
IN  
PERSPECTIVE, &c.

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PART I.

*The Principles, &c. of PERSPECTIVE.*

CHAP. I.

*Of PERSPECTIVE in general.*

**P**ERSPECTIVE is the Art of delineating Objects on a plane Surface, such as they would appear at a certain Distance and Height upon a transparent Plane placed perpendicular to the Horizon, between the Objects and the Eye.

Hence this Art is absolutely necessary for such as would thoroughly understand that of Drawing;  
B ing;

ing; and is of the greatest consequence in those of Engraving, Etching, Carving, or Painting : yet Perspective of itself, cannot be called a certain Rule in these Arts, but is to be used with Judgment and Discretion ; for, being well understood, if it be applied too accurately, the Practitioner may indeed effect such things as are within the Rules of Art, yet the Work will not always have that agreeable effect, that natural excellency and simplicity, which a less rigorous observance of the Rules of this Art might produce : therefore the young Artist is to adhere to the Precepts of Perspective no farther than as it leads to the Perfection of his Work, or Design ; and when it is not useful to these Purposes he is to neglect it, lest it should misguide him, and lead him to something repugnant to his peculiar Art.

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## C H A P. II.

### DEFINITIONS *in Perspective.*

I. **T**HE horizontal Line is that Line supposed to be drawn parallel to the Horizon through the Eye of the Spectator ; or rather, it is a Line which separates the Heaven from the Earth, and which limits the Sight. Thus A, B, see the Plate, Fig. 1. are two Pillars below the horizontal Line C D, by reason the Eye is elevated

vated above them ; in Fig. 2, they are said to be equal with it ; and in Fig. 3, raised above it. Thus, according to the different Points of View, the Objects will be either higher or lower than the horizontal Line.

2. The Point of Sight A, Fig. 4, is that which makes the central Ray on the horizontal Line *ab* ; or it is the Point where all the other visual Rays D, D, unite.

3. The Points of Distance C, C, Fig. 4, are Points set off in the horizontal Line at equal Distances on each Side of the Point of Sight A.

4. And in the same Figure B B represents the base line, or fundamental Line.

5. E E is the Abridgment of the Square, of which D, D, are the Sides.

6. F, F, the diagonal Lines which go to the Points of distance C, C.

7. Accidental Points are those where the Objects end : these may be cast negligently, because neither drawn to the Point of Sight, nor to those of Distance, but meeting each other in the horizontal Line. For example, Two Pieces of square Timber G and H, Fig. 5, make the Points I, I, I, I, on the horizontal Line ; but go not to the Point

of Sight K, nor to the Points of Distance C, C : these accidental Points serve likewise for Case-ments, Doors, Windows, Tables, Chairs, &c.

8. The Point of direct View, or of the Front, is when we have the Object directly before us ; in which case it shews only the Foreside ; and, if below the Horizon, a little of the Top ; but nothing of the Sides, unless the Object be polygonous.

9. The Point of oblique View, is when we see an Object aside of us, and as it were aslant, or with the Corner of the Eye ; the Eye, however, being all the while opposite to the Point of Sight ; in which case, we see the Object laterally, and it presents to us two Sides or Faces. The Practice is the same in the side Points, as in the front Points ; a Point of Sight, Points of Distance, &c. being laid down in the one as well as the other.

10. Ichnography is the Figure of the Platform in Perspective, or the Plan any thing is to be raised upon.

11. Orthography in Perspective is the Figure of the front or foreside of an Object, as an House, &c. or it is the Figure of such an Object directly opposite to the Eye. As the Ichnography represents the Plan, the Orthography represents the Side opposite to the Eye.

12. Sceno-

12. Scenography is what exhibits the Object quite perfect with all its Diminutions and Shadows, front, sides, height, and all raised on the geometrical Plan.

---

### C H A P. III.

*General RULES, or LAWS, in regard to Perspective.*

**L**ET every Line which in the Object or geometrical Figure is straight, perpendicular, or parallel to its Base, be so also in its scenographic Delineations, or in the Description thereof in all its Dimensions such as it appears to the Eye; and let the Lines which in the Object return at right Angles from the fore-right Side be drawn in like manner scenographically from the Point of Sight.

Let all straight Lines, which in the Object return from the fore-right Side, run, in a scenographic Figure, into the horizontal Line.

Let the Object you intend to delineate, standing on your right Hand, be placed also on the right-Hand of the Point of Sight, and that on the left Hand, on that Hand of the same Point; as also that which is just before, in the middle of it.

Let those Lines which, in the Object, are equidistant from the returning Line, be drawn, in the

scenographic Figure from that Point found in the Horizon.

In setting off the Altitude of Columns, Pedestals, and the like, measure the height from the base-line upward in the front or fore-right side; and a visual Ray down that point in the Front, shall limit the Altitude of the Column, or Pillar, all the way behind the front Side, or orthographic Appearance, even to the Point of Sight. This Rule must be observed in all Figures, as well where there is a Front or fore-right Side, as where there is none.

In delineating Ovals, Circles, Arches, Crosses, Spirals, and cross Arches, or any other Figure in the Roof of any Room, first draw ichnographically, and so, with Perpendiculars from the most eminent Points thereof, carry it up to the Ceiling, from which several Points carry on the Figure.

The Center in any scenographic regular Figure, is found by drawing cross Lines from the opposite Angles, for the Points where the Diagonals cross in the Center.

A ground-plane of Squares is alike, both above and below the horizontal Line, only the more it is distant either above or beneath the Horizon, the Squares will be so much the larger or wider.

In drawing a perspective Figure where many Lines come together, you may, for the directing of your Eye, draw the Diagonals in red, the visual Lines in black, the Perpendiculars in green, or other different Colour, from that which you intend the Figure shall be of.

Having considered the height, distance, and position of the Figure, and drawn it accordingly, with side or angle against the Base, raise Perpendiculars from the several Angles or designed Points, from the Figure to the Base, and transfer the length of each Perpendicular from the Place where it touches the Base to the Base on the Side opposite to the Point of distance, so will the Diametrals drawn to the Perpendiculars in the Base, by intersection with the Diagonals, drawn to the several transferred Distances, give the Angles of the Figures; and so Lines drawn from one Point to another, will circumscribe the scenographic Figure.

If in a Landskip there be any standing Waters, as Rivers, Ponds, and the like, place the horizontal Line level with the farthest Sight or Appearance of it.

If there be any Houses or the like in the Picture, consider their position, that you may find from what Point in the horizontal Lines to draw the Front and Sides thereof.

In describing things at a great Distance, observe the proportion, both in magnitude and distance, in the Draught, which appears from the Object to the Eye.

In colouring and shadowing of every thing, you must do the same in your Picture which you observe with your Eye, especially in Objects lying near; but according as the Distance grows greater, so the Colours must be fainter, till at last they lose themselves in a darkish sky-colour.

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## C H A P. IV.

### *Of* DESIGNING.

**T**HE Design is the first Idea of a large Work drawn roughly and in little, with an intention to be executed and finished at large; and this Design, according to the Rules of Mathematicians, makes the Object of Perspective.

The Art of Drawing or Painting has been by some of the greatest Masters divided into the Design, or Draught, the Proportion, the Expression, the Claro-obscuro, the Ordonnance, the Colouring, and the Perspective.

The Design is the simple Contour, or Outlines of the Figures intended to be represented, or the Lines that terminate and circumscribe them:

such

such Design is sometimes drawn in Crayons, or Ink, without any Shadows at all ; sometimes it is hatched, that is, the Shadows are expressed by sensible Out-lines, usually drawn across each other with the Pen, Crayon, or Graver. Sometimes again, the Shadows are done with the Crayon rubbed so as that there do not appear any Lines : at other times, the Grains or Strokes of the Crayon appear as not being rubbed : sometimes the Design is washed, that is, the Shadows are done with a Pencil in Indian Ink, or some other Liquor ; and sometimes the Design is coloured, that is, Colours are laid on much like those intended for the grand Work.

The essential Requisites of a Design are Correctness, Taste, Elegance, Character, Expression, and Perspective. Correctness depends on the justness of the Proportions, and knowledge of Anatomy. Taste is a certain manner of Correctness peculiar to one's self, derived either from Nature, Masters, or Studies, or all of them united. Elegance gives a delicacy that not only strikes persons of Judgment, but communicates an agreeableness that pleases universally. The Character is what is peculiar to each thing, wherein there must be diversity, insomuch that every thing has its peculiar Character to distinguish it. The Expression is the Representation of the Parts of a Painting or a Figure, according

to the Situation they are in with regard to the Point of Sight.

The Design or Draught, is a Part of the greatest Import and Extent in Drawing. It is acquired chiefly by Genius and Application, Rules being of less avail here than in any other Branch of the Art, as Colouring, &c. The principal Rules that regard Design are, that Novices accustom themselves to copy good Originals, at first sight; not to use Squares in Drawing, lest they stint and confine their Judgment; to design well from Life before they practise Perspective; to learn to adjust the Size of their Figures to the visual Angle, and the Distance of the Eye from the Model or Object; to mark out all the Parts of their Design before they begin to shade; to make their Contours in great Pieces, without taking notice of the little Muscles and other Breaks; to make themselves Masters of the Rules of Perspective: To observe the Perpendicular, Parallel and Distance of every Stroke; to compare and oppose the Parts that meet and traverse the Perpendicular, so as to form a kind of Square in the Mind, which is the great and almost the only Rule of Designing justly: To have a Regard, not only to the Model, but to the Part already designed, there being no such Thing as Designing with strict Justness, but by comparing and proportioning every  
Part

Part to the first. All the other Rules relate immediately to Perspective.

There are several Methods invented of designing mechanically. The following is the Method of the learned Sir *Christopher Wren*, and may be put in practice with great ease. A, Fig. 6, is a small Sight with a short Arm, B, which may be turned round about and moved up and down the small Cylinder C D, which is screwed into the piece E D, at D: this piece E D moving round about the Center E, by which means the Sight may be removed either towards E or F. F F is a Ruler fastened on the two Rulers G, G, which Rulers serve both to keep the square Frame S S S S perpendicular, and by their sliding through the square Holes T, T, they serve to stay the Sight either farther from, or nearer to, the said Frame; on which Frame is stuck on with a little Wax the Paper O O O O, whereon the Picture is to be drawn by the Pen I. The Pen I is by a small brass Handle V so fixed to the Ruler H H, that the Point I may be kept very firm, so as always to touch the Paper. H H is a Ruler that is constantly by means of the small Strings *a a a*, *b b b*, moved horizontally or parallel to itself; at the end of which is stuck a small Pin, whose Head P is the Sight which is to be moved up and down on the Out-lines of any Object.

The Contrivance of the Strings is this : The two Strings *a a a*, *b b b*, are exactly of an equal length : two ends of them are fastened into a small leaden Weight, which is employed in a Socket on the backside of the Frame, and serves exactly to counterpoise the Ruler *H H*, being of an equal Weight with it. The other two ends of them are fastened to two small Pins *H H*, after they have rolled about the small Pullies *M M*, *L L*, *K K*, by means of which Pullies if the Pen *I* be taken hold of, and moved up and down the Paper, the String moving very easily, the Ruler will always remain in an horizontal Position.

The manner of using it is thus : Set the Instrument upon a Table, and fix the Sight *A* at what height above the Table, and at what distance from the Frame *S S S S*, you please. Then looking through the Sight *A*, holding the Pen *I* in your Hand, move the head of the Pin *P* up and down the Out-lines of the Object, and the Point of the Pen *I* will describe on the Paper *O O O O*, the shape of the Object so traced.

Another mechanical Method of Designing much practised, is by means of the Camera-obscura ; being a Machine that represents an artificial Eye, wherein the Images of external Objects are exhibited distinctly in their native Colours, either invertedly or erect. The Camera-obscura, or  
darkened

darkened Room, is made after two different Methods, one, the Camera-obscura, properly so called; that is, any large room made as dark as possible, so as to exclude all Light but that which is to pass through the Hole and Lens in a Ball fixed in the Window in the said Room.

The other is made in various Forms, as that of a Box, whose Sides fold out, &c. for the Convenience of carrying it from place to place.

For the Construction of a Camera-obscura, 1. Darken the Room E F, Fig. 7. leaving only one little Aperture open in the Window at V, on the side I K, facing the prospect A B C D. 2. In this Aperture fit a Lens either plane convex, or convex on both sides. 3. At a due distance, to be determined by Experience, spread a Paper or white Cloth, unless there be a white Wall for the Purpose: Then on this G H, the desired Objects A B C D will be delineated invertedly. 4. If you would have them appear erect, place a concave Lens between the center and the Focus of the first Lens, or receive the Image on a plane Speculum inclined to the horizon under an Angle of  $45^{\circ}$  or by means of two Lenses included in a Draw tube instead of one. If the Aperture does not exceed the bigness of a Pea, the Objects will be represented without any Lens at all. And thus the Objects

Objects may be drawn or copied to the greatest degree of Accuracy.

For a farther Explanation upon this Head, as also for several other mechanical Methods of taking Draughts, &c. we refer the curious and unexperienced Reader to *The Art of Drawing, and Painting in Water-Colours*, lately published by the Editors of this Tract.

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## C H A P. V.

### *The FOUNDATION, METHOD, &c. of Perspective.*

PERSPECTIVE is either employed in representing the Ichnographies, or Ground-plat of Objects, or the Scenographies, or representation of the Objects themselves.

The Foundation of Perspective may be thus conceived; Suppose the Pentagon ABDEF, Fig. 8, were to be represented by the Rules of Perspective on the transparent plane VP, placed perpendicularly on the horizontal plane HR, dotted lines are imagined to pass from the Eye C to each Point on the Pentagon, CA, CB, CD, &c. which are supposed in their Passage through the Plane PV, to leave their Traces or Vestiges in the Points *a, b, d, &c.* on the Plane, and thereby to delineate the Pentagon *abdef*; which, as it strikes the Eye

Eye by the same Rays that the original Pentagon  $ABDEF$  does, will be a true Perspective Representation of it.

The Business of Perspective therefore is to lay down geometrical Rules for finding the Points  $a, b, d, e, f$ , upon the Plane.

By the following Examples it will appear that the whole Practice of Perspective is built upon the Foundation already laid down.

Thus to find the Perspective Appearance of a Triangle,  $ABC$ , Fig. 9, between the Eye and the Triangle, draw the line  $DE$ , which is called the Fundamental Line; from 2 draw  $2V$ , representing the perpendicular Distance of the Eye above the Fundamental Line, be it what it will; and through  $V$  draw, at right Angles to  $2V$ ,  $HK$  parallel to  $DE$ : Then will the Plane  $DHKE$  represent the transparent Plane, on which the Perspective Representation is to be made. Next, to find the Perspective Points of the Angles of the Triangle, let fall Perpendiculars  $A1, C2, B3$ , from the Angles to the Fundamental  $DE$ ; set off these Perpendiculars upon the Fundamental, opposite to the Point of Distance  $K$ , to  $B, A, C$ . From  $1, 2, 3$ , draw Lines to the principal Point  $V$ ; and from the Points  $A, B$ , and  $C$  in the Fundamental Line, draw the right Lines  $AK, BK, CK$  to the Point of Distance  $K$ ; which is so called

called because the Spectator ought to be so far removed from the Figure or Painting, as it is distant from the principal Point  $V$ . The Points  $a$ ,  $b$ , and  $c$ , where the visual Lines  $V 1$ ,  $V 2$ ,  $V 3$ , intersect the Lines of Distance  $AK$ ,  $BK$ ,  $CK$ , will be angular Points of the Triangle  $abc$ , the true Representation of  $ABC$ .

By proceeding in this manner with the angular Points of any right-lined Figure, whether regular or irregular, it will be very easy to represent it in Perspective: However, in Practice, several compendious Methods will occur to every Artist.

Again, if the scenographic Appearance of any Solid were to be represented; suppose of a triangular Prism, whose Base is the Triangle  $mno$ , Fig. 10, you need only find the upper Surface of it, in the same manner as you found the lower, or Base; and then joining the corresponding Points by right Lines, you will have the true Representation of the Solid in Perspective. So that the Work is the same as before; only you take a new Fundamental Line, as much higher than the former, as is the Altitude of that Solid whose scenographic Representation you would delineate.

But there is still a more commodious Way, which is this: Having found as above, the Base or Ichnographic Plane  $mno$ , let Perpendiculars

be erected to the Fundamental Line from the three angular Points, which will express the Altitudes of those Points. But because these Altitudes, though equal in the Body or Solid itself, will appear unequal in the scenographic View, the farthest off appearing less than those nearer the Eye, their true proportional Heights may be thus determined. Any where in the Fundamental Line, let  $A B$  be erected perpendicularly, and equal to the true Altitude; or, if the Figure has different Altitudes, let them be transferred into the perpendicular  $A B$ ; and from the Points  $A$  and  $B$ , and from all the Points of intermediate Altitudes, if there be any such, draw right Lines to the Point of Sight  $V$ : Those Lines  $A V$ ,  $B V$ , will constitute a Triangle with  $A B$ , within which all the Points of Altitude will be contained. Through the Points *on m*, draw Parallels to the Fundamental Line; and from the Points *a a*, &c. erect Perpendiculars to those Parallels; and the Points where they intersect the Lines  $A V$ ,  $B V$ , as in *a a*, *b b*, &c. will determine the apparent Height of the Solid in that scenographic Position to the Eye in  $V$ .

In practice, these Parallels and Perpendiculars are easily drawn, by means of a good Drawing-board, or Table, fitted for the Purpose.

To

To exhibit the Perspective of a Pavement, consisting of square Stones viewed directly. Divide the Side  $A B$ , Fig. 11, transferred to the Fundamental Line  $D E$ , into as many equal Parts as there are square Stones in one Row. From the several Points of Division draw right Lines to the principal Point  $V$ , and from  $A$  to the Point of Distance  $K$ , draw a right Line  $A K$ , and from  $B$  to the other Point of Distance  $L$ , draw another  $L B$ . Through the Points of the Intersections of the corresponding Lines draw right Lines on each side, to be produced to the right Lines  $A V$  and  $B V$ . Then will  $A f g B$  be the Appearance of the Pavement  $A F G B$ .

To exhibit the Perspective Appearance of a square  $A B D C$ , Fig. 12, seen obliquely, and having one of its sides  $A B$  in the Fundamental Line. The square being viewed obliquely, assume the principal Point  $V$ , in the horizontal Line  $H R$ , in such a manner, as that a Perpendicular to the Fundamental Line may fall without the side of the Square  $A B$ , at least may not bisect it; and make  $V K$  the Distance of the Eye. Transfer the Perpendiculars  $A C$  and  $B D$  to the Fundamental Line  $D E$ ; and draw the right Lines  $K B$ ,  $K D$ ; as also  $A V$  and  $V C$ : Then will  $A$  and  $B$  be their own Appearances; and  $c$  and  $d$  the Appearances of the Points  $C$  and  $D$ .

Conse-

Consequently,  $A c d B$  is the Appearance of the Square  $ABDC$ .

If the square  $ACBD$  be at a distance from the Fundamental Line  $DE$ , which yet rarely happens in Practice, the Distances of the Angles  $A$  and  $B$  must likewise be transferred to the Fundamental Line; and even the Oblique view itself is not very common.

The Reason why Objects appear the smaller as they are at the greater Distance is, that they appear according to the Angle of the Eye, wherein they are seen; and this Angle is taken at the Eye, where the Lines terminating the Objects meet.

The Eye  $A$ , Fig. 13, for Instance, viewing the Object  $BC$ , will draw the Rays  $AB$  and  $AC$  which give the Angle  $BAC$ ; so that an Object viewed under a greater Angle, will appear larger, and another under a less Angle smaller: For that among equal Objects, those at the greatest Distance appear smallest; and consequently, that in all Perspective the remotest Objects must be made the smallest, will be manifest from the Figure: the Objects  $BC$ ,  $DE$ ,  $FG$ ,  $HI$  and  $KL$ , being all equal, but at different Distances from the Eye, it is evident that the Angle  $DAE$  is less than the Angle  $BAC$ , that  $FAG$  is less than  $DAE$ ,

D A E, that H A I is less than F A G, and that K A L is less than H A I. Hence the second, third, fourth and fifth Objects, will appear smaller and smaller, though really all equal, inasmuch as the Angles diminish in proportion as the Objects recede.

If the eye, on the other hand, were removed to M, K L would appear the largest, and B C no bigger than N O.

Hence it follows, that, as Objects appear such as is the Angle they are seen under, if several Lines be drawn between the sides of the same Triangle, they will all appear equal: Thus all the Lines comprized between the sides ON and OP, Fig. 14. of the Triangle NOP, will appear equal to each other; and as Objects comprehended under the same Angle seem equal, so all comprehended under a greater Angle must seem greater, and all under a smaller Angle, less.

Thus much being premised, if there be a number of Columns or Pilasters to be ranged in Perspective on each side of a Hall, Church, or the like, they must of necessity be all made under the same Angle, and all tend to one common Point in the Horizon O, Fig. 15. For instance, If from the Points D E, the Eye being placed at A, and viewing the first Object D E, you draw the visual Rays D O and E O, they will  
make

make the Triangle DOE, which will include the Columns DE, FG, HI, KL, MN, so as they will all appear equal.

What has been said of the Sides is likewise to be understood of the Ceilings and Pavements; the Diminutions of the Angles of remote Objects placed either above or below, following the same Rule as those placed laterally. Trees being ranged by the same Law, have the same effect as the Columns, &c. for being all comprehended in the same Angle, and the two Rays having each its own Angle, and all the Angles meeting in a Point, they form a third, which is the Earth, and a fourth, which may be supposed the Air, and thus afford an elegant Prospect.

To exhibit the Perspective of a Circle, 1. If the Circle be small, circumscribe a square about it: Draw Diagonals and Diameters *ba* and *de*, Fig. 16, intersecting each other at right Angles; and draw the right Lines *fg* and *bc* parallel to the Diameter *de* through *b* and *f*; as also through *c* and *g* draw right Lines meeting the Fundamental Line in the Points 3 and 4. To the principal Point V draw right Lines V 1, V 3, V 4, V 2, and to the Points of Distance L and K draw the right Lines L 2 and K 1. Lastly, connect the Points of Intersection, *a, b, d, f, b, g, e, c*, with the Arches *ab, bd, df*, &c. Thus will *abdfbgca* be the Appearance of the Circle. Li

If the Circle be large, on the middle of the Fundamental A B, Fig. 17, describe a semicircle, and from the several Points of the Periphery C, F, G, H, I, &c. to the Fundamental Line, let fall Perpendiculars C 1, F 2, G 3, H 4, I 5, &c. From the Points A, 1, 2, 3, 4, 5, &c. draw right Lines to the principal Points V; as also a right Line from B to the Point of Distance L, and another from *a* to the Point of Distance K. Through the common Intersection draw right Lines, as in the preceding Case: Thus we shall have the Points *e f, g, h, c*, which are the Representations of these A, C, F, G, H, I, which being connected as before, give the Projection of the Circle.

Hence appears not only how any curvilinear Figure may be projected on a Plane, but also how any Pavement consisting of any kind of Stones may be delineated in Perspective.

## C H A P. VI.

*Of the general PRACTICE of Perspective as it regards  
Drawing.*

THE practical Part of Perspective is only the Application of these Rules to the actual Description of Objects. But as this Part is purely Mathematical, its Assistance towards  
Drawing

Drawing is only what can be performed by Rule and Compass, and can therefore strictly serve only for finding the Images of Points of which they are composed ; and as these are infinite, it is endless to find them all by the strict Rules : Whence it becomes necessary after a sufficient number of them are found, to complete the Image by the Help of Drawing ; to the better effecting of which these Points serve as a Guide. Thus when a Circle is to be described, the practical Rules serve to find a sufficient number of Points in the Circumference, which, being neatly joined by Hand, will perfect the Image so that in strictness nothing in this Image is found by Mathematical Rules save the few particular Points ; the rest owes its being to the Hand of the Drawer.

Thus also, if any complicated Figure be proposed, it may not be easy to apply the practical Rules to the description of every minute part ; but by inclosing that Figure in a regular one properly subdivided, and reduced into Perspective, that will serve as a Help, whereby a Person skilled in Drawing may with ease describe the Object proposed. Upon the whole, where the Boundaries of the proposed Objects consist of straight Lines and plain Surfaces, they may be described directly by the Rules of Perspective : But when they are curvilinear, either in their Sides or Surfaces, the practical Rules can only serve for the Description  
of

of such right-lined Cases as may conveniently inclose the Objects, and which will enable the Designer to draw them within those known Bounds with a sufficient degree of exactness.

It is therefore in vain to seek by the practical Rules of Perspective to describe all the little Hollows and Prominencies of Objects; the different Light and Shade of their Parts; or their smaller Windings and Turnings; the infinite Variety of the Folds in Drapery; of the Boughs and Leaves of Trees; or the Features and Limbs of Men and Animals; much less to give them that Roundness and Softness, that Force and Spirit, that Easiness and Freedom of Posture; that Expression and Grace, which are requisite to a good Picture: For the Rules designed to answer these Purposes, the Reader is desired to consult *The Art of Drawing*, already referred to.

Perspective, then, must content itself with its peculiar Province of exhibiting a kind of Rough-draught, to serve as a Ground-work, and to ascertain the general Proportions and Places of the Objects, according to their supposed Situations, leaving the rest to be finished, beautified, and ornamented by a Hand skilful in Drawing.

It is true, Perspective is of most use where it is most wanted, and where a Deviation from its Rules would be most observable, as in describing  
all

all regular Figures, Pieces of Architecture, and other Objects of that sort, where the particular Tendency of the several Lines is most remarkable: The Rule and Compass, in such Cases, being much more exact than any Description made by Hand: But still the Figure described by the Perspective Rules will need many Helps from Drawing: The Capitals and other Ornaments of Pillars, and their Entablatures, the Strength of Light and Shade, the apparent Roundness and Protuberance of the several Parts, must owe their Beauty and Finishing to the Designer's Hand: But with regard to such Objects as have no constant and certain determinate Shape or Size, such as Clouds, Hills, Trees, Rivers, uneven Grounds, and the like, there is a much larger Latitude allowable, provided the general Bulk, or natural Shape of those Objects be in some measure observed, so as not to make them appear unnatural or monstrous.

But although the strict practical Rules of Perspective are in a great Measure confined to the Description of right-lined Figures, yet the Knowledge of the general Laws of that Science is of great and necessary use to inform the Judgment after what manner the Images of any proposed Lines should run, which way they should tend, and where terminate; and thereby enables it the

better to determine what appearance any Objects ought to put on according to their different Situations and Distances ; it accustoms the Eye to judge with greater Certainty of the Relations between real Objects and their perspective Descriptions ; and the Hand to draw the same accordingly ; and directs the Judgment readily to discover any considerable Error therein, which might otherwise escape notice. Besides that, when the Ground or general Plan, and the principal Parts of a Picture are first laid down according to the Rules, every thing else will more naturally fall in with them, and every remarkable Deviation from the just Rules will be the more readily perceived, and the easier avoided or rectified ; so that although it may be infinitely tedious or absolutely impracticable to describe every minute Part of a Picture by the strict mechanical Rules, yet the employing them, where they can be the most commodiously used, will give the Picture in general such a Look as will guide the Artist in Drawing the other Parts, without any obvious Inconsistency.

## C H A P. VII.

*A mechanical Method of PERSPECTIVE.*

**F**OR the Benefit of such as are unacquainted with Mathematics, we propose to lay down the following Directions, whereby they may lay any Plan in Perspective, and raise Pillars or Buildings to due Heights, according to their proper Distances.

Suppose, LLDBA, Fig. 18, a square Piece of Pavement, consisting of twenty-five Pieces of Marble, each a Foot square: It must be measured exactly, and laid regularly down upon Paper; and for the sake of a more distinct Notion how every particular Square will appear when you have a true perspective View of them, mark every other Stone or Marble black; or else number each of them as in the Figure, which is divided into Squares, every other one of which may be made to appear black, like the three at the Bottom marked BCD: or 1 2 3 4, answering to those which are marked in Perspective with the same Numbers.

Now to lay your Plan in Perspective, fix your Point of Sight as you observe in the Figure; or

more or less to the right or left, as you think proper: Then draw the Line K K parallel to, and at what distance you will from LL; and raise a Line on each side from L to K, to form the Figure you see, as a Frame to your Picture; then draw a Line from the Corner K, which is the Point of distance, to the opposite Corner L; and this Line will regulate your work. Thus far done, draw Lines from the Squares of your Plan to the Point of Sight, as exact as possible; and wherever your Line of Distance cuts those Lines, there draw Lines parallel to the Line LL, which will give you the Squares in Perspective, or the true Figure of every Square: Thus D in the Perspective Plan answers to D in the measured Plan, and 1, 2, 3, and 4, answer to their corresponding Squares in the same Plan.

Now it remains to direct you how to raise either Pillars, Trees, Houses, or any other Bodies, according to their respective Heights, at different Distances and Proportions, on the Plan you have laid down.

Having your Plan measured out in Perspective into Squares of a Foot, or any other measure, let one of these Squares, 14 in Fig. 19. serve for the Base of a Pillar a Foot thick. Mark the Line LK, by the Scale of the Ground-plan, into equal  
 Propor-

Proportions or Feet;  $a, b, c, d$ ; which being so many Feet high, and standing on the Base, are Uprights, not in Perspective. Then draw a Line, 4 5 parallel to 1  $c$ . Join  $c$  and 5, and then you have the Front of a Body three Feet high and one Foot wide, being that which you was to raise. From 4 draw a Line, with a Black-lead Pencil, to the Point of Sight; and from 3 raise a Line parallel to 4 5, till it touches the penciled Line, passing from 5 to the Point of Sight, which will give you the side Appearance of the Column or Body, as you will see it from the Place where you stand.

Then, with a Pencil, from  $c$  draw a Line to the Point of Sight, which will determine the Line 6 7 that bounds the Perspective View of the Column a-top. Afterwards from 2 raise a penciled Line parallel to  $a c$  or  $L c$ , till it touches the Line drawn from  $c$  to the Point of Sight; draw then 6 7 parallel to  $c 5$ , and you will have the Square of the Top of the Column, as observed from A, which is supposed to be the Place where you stand.

It is to be observed, that the Line drawn from 2 to 6 is only an imaginary Line, and in consequence is to be rubbed out, because not being seen from the Place where you stand, it must not appear.

appear in the Drawing. The same may be understood of the Line drawn from 1 to 2; but it is necessary that they appear in the Draught, on account that they direct you how to regulate the top of your Column, and to place it with certainty upon its Base.

Lastly, finish your Column with Lines only, that is from 1 to c, from 4 to 5, from 3 to 7, from c to 5, from 6 to 7, and from 1 to 4, whereby you will have the true Representation of the Column, as in Fig. 20.

When this is done, you may erect another Column on any one of the Squares in the same manner, observing to sling your Shades all on one side, and being able to master these few Examples, which may cost you very little trouble, you will be capable of doing any thing in this way.



## P A R T II.

*The Art of PAINTING upon GLASS, &c.*

## C H A P. I.

*Of Painting upon GLASS.*

**P** AINTING upon Glass is an Art which has generally appeared so difficult, that few have succeeded in the Attempt, and yet there is no representation of any Portrait can appear more elegant than in a Picture done well in this manner. For here there is all the Softness and Tendernefs that can be desired in a Picture; and it is easy to work, as there are no Out-lines to draw, nor any Shades to make, but the Colours are put on without the trouble of either.

The Pictures which are used on this Occasion are those done in Mezzotinto; for their Shades being rubbed down with an Instrument on the Copper-plates, the several Lines which are drawn to represent the shady Part of any common Print are, by this means, joined together, and appear as soft and united as in any piece done with Indian Ink.

Being provided with such Prints as you like, cut off the Paper of the Margin, so that none be left but the Print itself: then taking some of the

finest Crown-glass, have it cut exactly to the Size of your Prints ; and having well cleaned the Glass, lay some Venice Turpentine, as thin as possible, on one side thereof, with a Brush made of Hog's Hair ; and if you perceive the Turpentine to lie unequally, pass a Piece of Wood made like a flat Ruler over it, till it lies equal in every Part ; then wet the Back of your Print with a Sponge dipt in Water, and lay it with the Picture-side next the Turpentine upon the Glass ; taking care that every Part of it lie close to the Glass, and that there are no Bubbles nor Blisters to be seen : then you may roll it over with a wooden Roller made like a Cylinder, of two Inches diameter, to fix it close to the Glass. When this is done, wet the Back of your Print with a Sponge as before, till the Paper will rub off with your Fingers : then rub it gently till there remains only the Picture itself on the Glass, and thus you will have all the Lines and Shades very visible, and as if it was a fine Drawing in Indian Ink. Then let it remain till the next Day to dry ; for otherwise the Colours will not take, because they are ground in Oil.

*MATERIALS proper for Painting upon Glass.*

THE several Sorts of Colours ground in Oil for this purpose, and tied up in little Bladders may be had at most Colour-shops. Of these you are to provide as follow :

WHITES.

## W H I T E S.

Flake-white.

White-lead.

## Y E L L O W S.

English Pink.

Yellow Oker.

Dutch Pink.

Yellow Orpiment.

## R E D S.

Rose Pink.

Vermilion.

Red-lead.

Indian Red.

Lake.

Carmine.

## B L U E S.

Ultramarine.

Blue-bice.

Verditer.

Prussian Blue.

Saunders Blue.

Indigo.

## B L A C K S.

Lamp-black.

Ivory-black.

## G R E E N S.

Verdigrease distilled.

Verdigrease and Yellow

Oker mixt.

Verdigrease and English

Pink mixt.

Verdigrease and Dutch

Pink mixt.

## B R O W N S.

Spanish Brown.

Umber.

Being provided with these Colours, you may mix them one with another to what degree of Colour you think proper, upon a Pallet, by means of a smooth Knife, with a tender bending Blade, adding a little more of one Colour to another, and mixing them well till you have them to your Mind.

To get the Colour out of the Bladders, prick a Hole at the bottom of each Bladder you design to use, and press the Bladder till you have Colour enough upon your Pallet only for the present Use;

C 5 for

for in a Day's time the Colours will dry, and can never be recovered.

For Painting upon Glass, the Artift is directed to provide himself with a Box about two Foot and a half long, five Inches high, and sixteen wide, with Partitions in it as follow :

No. 1. Turpentine Oil, to clean Pencils.	No. 4. For dry Colours.	No. 5. For Pencils and Sticks.
	No. 6. For the Colours in Bladders, and for the Pallet.	
	No. 3. For Bottles of Oil, and a Knife.	
No. 2. To put the Leavings of the Colours in.		

It is thought expedient that the use of this Box, which is to keep all the Materials requisite for Painting upon Glass together, and preserve them clean, should, along with the Use of these Materials, be particularly explained.

No. 1. must be a Box of tinned Iron placed in the great wooden Box for holding Oil of Turpentine, to clean the Pencils after having done your Work.

In Painting, you must take Care to use only one Pencil in a Colour; or to have a Pencil for each; and as soon as you have done using them for the Day, to clean them from the Colours, by dipping them into the Oil of Turpentine, and laying the hairy Part of the Pencil upon the tinned Division between No. 1, and No. 2, pressing your Finger pretty hard upon the Hair, and drawing it four or five times over the Tin, by which means the Colours that come out of the Pencil will fall into the tin Box No. 2, and the Pencils will be clean, and the several mixtures of Colours that fall there with their Oils will become a good Size for Gold.

Then lay your Pencils with their Sticks in the Box No. 5, whereby they will be fit for use upon the next Occasion. It is to be remarked that the Pencils should be of two Sorts, that is, some of Camel's Hair, being such as will come to a Point, when the Colour is in them, and some dry Brushes of white Hair, to be used only for joining one Colour with another, when they are just laid on, in order that they may appear soft, and that the Place where the Painter leaves off abruptly may not be distinguished.

The Painter upon Glass should at least have three Dozen of Camel's Hair-pencils with Sticks to each about ten Inches or a Foot long, made of Cedar or Brazil-wood ; though some nice Persons have them turned in Ivory.

At No. 4, there should be a case of wood divided into several Parts for keeping your dry Colours in, such as Carmine and Ultramarine with others to grind upon occasion : These Divisions serve to keep the Colours from mixing with each other, and thereby spoiling one another. The finer or richer Colours, such as Ultramarine or Carmine may rather be bought thus in Powder than ground in Oil, because in that case they are apt to dry by degrees and be lost.

The method of grinding these in Oil is, to put a little of either of them upon a polished Marble, and with a Drop or two of Oil to mix them by means of a soft bladed Knife, and then lay it on your Pallet. It may be observed that a very little of either Ultramarine or Carmine will serve, because the least touch of either on the light Sides of your Drawing will give the Picture a cast.

If you have occasion to grind any other Colour coarser than these in their Powder, you must be provided with a Muller made of a very hard Stone and finely polished ; Porphyry made in the Shape of a Sugar-loaf is the best Sort of Muller, though  
Marble

Marble is good, as is also any Stone that will bear a Polish, and even Glass, Crystal, or any such like Materials.

In grinding a large Quantity of Colours, you are to consider that your Oil must be in proportion, and never so much as to overcome the Quantity of Colour, which in the grinding you may observe will frequently turn from under the Muller; in that case scrape it up with a Knife, and place it under the Muller again till it is as fine as you desire it. Then put it immediately into a Piece of Bladder, after having first immersed the Bladder in Warm-water to soften it; then tie it up, and let it remain to be used as directed underneath.

Let the Partition, No. 3, be lined with Tin or tinned Iron, because it is to enclose the Bladders of Turpentine and Linseed Oil, as also those of Nut and burnt Oil, which you should always keep by you; and which, in the taking in and out, would grease and stain the Wood; whereas the Tin will preserve it from any Stain from the Oil.

No. 6, which is in the middle of the Box, should also be made of Tin or tinned Iron, to take in and out at Pleasure; because it is to contain all the Bladders of oiled Colours; and as some of them will frequently be used, the Place  
2 for

for keeping them must otherwise become greasy. Over these should be laid the Pallet, which, every Night after having done your Work, should be cleaned from the Colours put upon it; or else covered with its Colours in Water till the next Day. To keep your Pallet clean, rub it with Oil of Turpentine and a coarse Linen-cloth; and afterwards with Nut or Linseed-oil, till it is dry.

But take what care you will of your Oil-colours in small Quantities, when they are exposed to the Air, there will be a Coat, or thick hard Crust over them in a Day or two, which indeed may be taken off with a Knife, but yet much of the Colour will be lost. After this Crust is taken off, the rest of the Colour will be fit for use; and if it is too thick, you may put a Drop or two of Linseed-oil to it, and mix it well with a tender-bladed Knife. Some People in using Ultramarine and Carmine, on account of their great Price, only put a Drop of Oil upon their Pallet, and put as much Colour to it as they think will be sufficient; thus working them together with a Knife, which is, without doubt, more saving than to mix it on the Stone.

*The Manner of using the COLOURS in Painting  
upon GLASS.*

AS the Lines and Shades of your Picture happen to open, so you ought to dispose your Colours;

lours; that is, lay the lighter Colours first on the lighter Places of your Prints, and the darker over the shaded Places; and if you have once laid on the brighter Colours, it is no great matter whether the darker sorts are laid a little over them: for the first Colour laid on will hide those laid on afterwards. As for Example:

#### YELLOWS.

The lightest Yellow may be laid on first, and the Dutch Pink will shade it.

#### REDS.

The Red-lead may be laid on first, as the brightest Red Colour; and to shade it with Lake or Carmine will bring your Picture to a beautiful Scarlet, equal to the finest Tincture of the Dye of Cochineal.

#### BLUES.

Lay on first the Blue-bice, and shade it with Indigo; or else take Ultramarine and lay it on in the Lights, and shade it with Indigo.

#### GREENS.

Lay on first some Verdegrease, and then a mixture of that and Dutch Pink; and you may make this Green as Yellow as you desire it by adding more Dutch Pink as you see occasion.

Let it be remembered, that, when any of these Colours are too strong, they may be lightened to any Degree, by mixing White with them upon  
your

your Pallet; or you may, on the other hand, darken them as much as you think fit, by mixing them with deeper Colours.

Having painted your Glass, it must stand to dry for three or four Days, before it be fit to put in a Frame.

## C H A P. II.

*Of the making of CRAYONS for dry-colouring.*

THE Use of Crayons for dry-colouring is so necessary in taking Views and Prospects, and there are so few Crayons that are good of the Sort, that the way of making them is thought a necessary Article to be known by every one who is a Lover of Drawing and Painting.

### WHITE.

As to White we have no occasion for any other than that of white soft Chalk, which should be sawed into Lengths of an Inch and a half, or two Inches; and there are little Saws made on purpose for such uses, about four Inches long and very thin.

When you have sawed your Crayons of Chalk, which should be at most a quarter of an Inch thick, round off the Corners with a Penknife; and

and point them, by drawing your Penknife upwards from the Place where the Point is to be. You ought to have a Dozen or two of these, to be in a Case by themselves; or they will be discoloured by the other Colours.

### YELLOW PASTILS, or CRAYONS.

Yellows come next, which should be divided into four or five Degrees of Colour.

First Yellow. Take some Grounds of Starch and Flour of Brimstone, mix them well with a Knife upon a polished Marble, so that they produce the Colour of Straw, or such a Yellow as will shew itself faintly; then pour a little Milk to them, or a little pale Ale-wort, till the Colour becomes like a Paste; then spread the Paste on a smooth Piece of Chalk, with a broad Knife, till it is about the third Part of an Inch thick, and let it lie till it is half dry; then with a sharp Knife cut it in Lengths of an Inch and a half, about the fourth Part of an Inch wide, and roll it thin between two little Pieces of Board, till it is round like a Straw, and point it as is directed for the Chalk. If you please you may use ground Chalk instead of Grounds of Starch.

Second Yellow. This is made of yellow Oker, ground well with fair water, and then dried and beat. Mix it with ground Chalk, in such a Quantity as that it may be a little deeper than the former Colour, and mix this up with pale Ale-wort.

wort, in which a little white Sugar-candy may be dissolved; and make these into Crayons as the former.

Third Yellow. Grind yellow Oker with Water, with a Stone and Muller, and when it is dry, beat it very fine, and make it into Pastils or Crayons with pale Ale-wort, or Size made with Glover's Leather, boiled in Water till it comes to a Jelly; use it as before directed, and roll the Pastils between two Boards.

Fourth Yellow. Take English Pink, grind it as the former with Water, and when it is dry, beat it fine, and mix it with a very little ground Chalk, till it is deeper than the former Colour; then put to it some wort of pale Ale, and stir all well together, and make it into Pastils or Crayons, by rolling it in the foregoing Manner.

Fifth Yellow. English Pink is to be ground as the former, and to be made into Pastils or Crayons by itself, with pale Ale-wort.

Sixth Yellow. Dutch Pink is to be used as the former, and mixed with pale Ale-wort, or Milk, is to be rolled and dried.

Seventh Yellow. Orpiment is one of the most poisonous Colours that can be used; however it is one of the most beautiful Sort, and is next to Orange-colour. This must have a little ground Chalk mixed with it, well tempered together, and made up with pale Ale-wort, with a little Gum-

Gum-dragon dissolved in it; and then rolled up into Pastils like the former.

### ORANGE-COLOURS.

First Orange-colour. Take yellow Orpiment, mix it with pale Ale-wort, and when it is in Paste roll it, and make it into Pastils or Crayons.

Second Orange-colour. Take Orpiment and Red-lead, (let the Red-lead be very finely ground in Water, and dried) then mix a little of this with your Orpiment, till you have the Colour you desire; and putting it in some Ale-wort, wherein some Gum-dragon has been dissolved, make it into a Paste, and roll it into Pastils or Crayons.

Third Orange-colour. Take English Pink, grind it well, and put to it as much Vermilion as will make it of the Colour you desire; mix these up with Ale-wort, that has been boiled till it is more glutinous than ordinary, and make it into Pastils or Crayons as before.

Fourth Orange-colour. Take English Pink, finely ground, and put to it as much Red-lead, well ground, as will make it agreeable to your Design, mix these well with Ale-wort boiled to a thickness, and make them into Crayons.

Fifth Orange-colour. Take some Dutch Pink, well ground, and mix it with some Red-lead finely powdered, to the Colour you want; then with Ale-wort, or Milk, make it into a Paste, and make that into Pastils as before. Take

Take care in the mixture of these Colours that they have as many different Shades as possible.

### R E D S.

First Red. Take Red-lead, grind it well with Water, then dry it and beat it to a fine Powder, and put to it some Chalk or White-lead finely ground to heighten it; mix this with Ale-wort, wherein a little Gum-dragon has been boiled, make it into a Paste, and roll it into Crayons. Of this your Pastils should be made some deeper, others paler.

Second Red. Take Red-lead, and grind it well with a Marble and Muller, make it into a Paste with Ale-wort, in which Gum-dragon has been boiled.

Third Red. Red-oker wants no preparation, but sawing, as directed for Chalk, in the first Article.

Fourth Red. Take Vermilion, ground fine, and mix it with some fine Chalk, or White-lead, well pulverized; divide the composition into three Parts; and by adding more of the White to one than another, you may make three different Colours, then put Ale-wort boiled thick to each, and make them severally into Paste, and then into Pastils.

Fifth Red. Take Vermilion, grind it well, and mix it with Ale-wort, that hath been boiled  
to

to a thickneſs with Gum-dragon, till it is a Paſte, then roll it into Crayons or Paſtils.

Sixth Red. Take ſome good Lake, well ground with Water upon a Marble, and when it is well dried and powdered, divide it into three Parcels, and mix with each as much Chalk or White-lead ground fine, as will make them of different Colours, then work them ſeverally into Paſte, and afterwards into Crayons.

Seventh Red. Take fine Lake, and reduce it to as fine Powder as you can, with Water; and when it is dry, and again finely powdered, mix it with Ale-wort, and make it into Paſtils or Crayons.

Eighth Red. Take Indian Red, grind it well with Water, and dry it like the other Colours; then mix it with Ale-wort that has been boiled to a thickneſs with a little Gum-dragon. This alone will be a very ſtrong Colour; but you ſhould mix ſome of it with White in two or three different manners, to be Shades to one another.

Ninth Red. Take Roſe Pink, and cut it into the Shape of Crayons, without any preparation. Carmine may be too dear for them, for a Shiling's worth would make but a very ſmall Crayon.

#### PURPLES.

Fiſt Purple. Take Roſe Pink finely ground and powdered, mix it well with a little Saunders-blue,

blue, till the Powder appears of the Colour you desire it; then make it into Pafte with Ale-wort thickened with Gum-dragon, and roll it into the Figure of Crayons.

Second Purple. Take Lake finely ground and washed, put it to as much Blue-bice as is sufficient to make it of a reddish Purple; and vary this in two or three manners, each lighter than the other. In the lighter Sorts, put a sufficient Quantity of Chalk, or White-lead well ground, and mix them up with Ale-wort boiled to a thickness with Gum-dragon, and roll them into Pastils.

Third Purple. Take some Lake well ground, and add to it as much Prussian Blue as will make it of the Colour you desire; mix these very well together in several Parcels, making some more inclined to Red than the others; and to the faintest Purple of them add ground Chalk at pleasure; and make these severally into Pafte with Ale-wort thickened by boiling, so make them after the same manner as the former into Pastils.

### B L U E - S.

First Blue. Blue-bice is the lightest Blue-colour that is used, it must be well ground with common Water on a fine Marble; and allowing it to dry, reduce it again to Powder, afterwards lay it in four Parcels, and to three of them put some Chalk, or White-lead, in different proportions, so that when they come to be mixed, every  
one

one may be lighter than the other. Mix these separately with Ale-wort thickened with Scraps of Glover's Leather; and after being in Paste to your mind, make them into Crayons. The fourth Part of the Blue-bice must be made up by itself in the like manner.

Second Blue. Take Verditer well ground on a fine Marble, lay it in four Parcels, and mix one of them purely with a thin Size made of Glover's Shreds and Ale-wort, and mix the other three Parts with several proportions of Chalk, or White-lead, well ground, so as to make shades to one another; make these into Paste with Ale-wort thickened with Gum-dragon, and then into Crayons.

Third Blue. Take some Prussian Blue well ground, lay it in four Parcels on your Marble, and with three of them mix some Chalk, or White-lead well ground, to make them of different Degrees of Colour, and the fourth must be alone. Make the three mixed Colours into a Paste with pale Ale-wort boiled till it thickens; and the plain Colour into a Paste with Ale-wort boiled and thickened with Shavings of White-leather from the Glovers. Make all these into Pastils.

Fourth Blue. Take Rock-indigo well ground with Water on a Marble; dry it, and reduce it to Powder a second Time; then divide it into Parcels as before, and with two or three Parts  
of

of these Parcels mix different proportions of ground Chalk, or White-lead ground, to make them deeper or paler, and let one Part be the simple Colour. To the mixed Colours put some Ale-wort thickened with boiling; and mix them to Pastes, and then make them into Pastils.

As for the plain Indigo mix it with Ale-wort thickened by boiling with Glover's Shreds of white Leather, and then make it into Crayons.

### B L A C K S.

First Black. The Black commonly used as a Crayon is Charcoal cut into lengths; the softest and best is that made of Willow. You should have a Dozen of these at least, because Black and White are much more used than any other Colour.

Second Black. Take Ivory-black ground very fine with common Water, and add to it a very small quantity of ground Indigo, for a bluish cast will enliven the Black, and help that deadness which a plain Black always carries with it.

### B R O W N S.

First Brown. Take for a light Brown some Fuller's Earth; grind it well with Water, and mix it with some ground Chalk, or White-lead, to make it into different Colours, that is, lighter or darker as you think proper, mix this up with pale Ale-wort boiled thick, and have at least four Sorts of it.

Second

**Second Brown.** Take some Spanish Brown ground very well, and mix it with some Fuller's Earth to make it lighter, because the Spanish Brown is a dark Colour of itself; and having made this mixture, you may put a little Chalk to some of it, or White-lead ground in different proportions, to make it of different Shades. These being by far the lighter Browns, mix them severally in Pastes with a light Size of Fish-glue, or Isinglass and Water; and mix some of them with pale Ale-wort boiled thick, or thick Water-gruel boiled with Gum-dragon; then make them into Crayons.

**Third Brown.** Take Spanish Brown ground fine, and some Indian Red; mix these well together, and to that put some pale Ale-wort, till it becomes a Paste. You may make some of this Colour lighter with Chalk, or White-lead ground; then roll it into Pastils.

### G R E E N S.

**First Green.** Take some Verdegrease, and boil it in sharp Vinegar: when it boils, add a little Tartar powdered, which will so dissolve the Verdegrease, that the Liquor will be of a fine Colour; then set the Liquor in little Gallipots, exposed to the Air, which will dry the Colour, and then it will dissolve in common Water. This may be taken with as much warm Ale-wort as will cover it, and will dissolve the Green; then

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make

make it into Pastils, with ground White-chalk, as much as you think fit.

**Second Green.** Take distilled Verdegrease ground with Vinegar on a Marble, wash it well with Water ; the manner of which is, to throw the Verdegrease into Water, and in half a Minute to pour off the Water into a Cup, and let it settle ; then pour the Water from it, and wash it again in the same way, and when this is dry make it into Pastils with Ale-wort.

**Third Green.** Take Verdegrease prepared as before, finely powdered, and mix it with a little Prussian Blue in several proportions. In the lightest Sorts put a little White, or the brightest Yellow well ground, to make varieties of Colour ; mix all these with pale Ale-wort boiled to a thickness.

**Fourth Green.** Take Indigo well ground, and some English Pink ; mix these well together upon a Marble, and when they are well powdered, make them into a Paste, and roll them up with a soft Size and Oil into the Shape of Crayons, or with pale Ale-wort or thick Water-gruel ; but when you use Water-gruel, it must be strained and boiled with some Gum-dragon.

**Fifth Green.** Take Blue-bice ground fine, add to it some Dutch Pink well ground ; mix them in Parcels, and prepare them in Shades to  
one

one another; then make them into Pastes, and roll them into Pastils.

The Liquid you use to make them into Pastils must be Ale-wort boiled a little thick.

Sixth Green. Take Rock-Indigo ground very fine with Water on a Marble, and when it is dry beat it fine again; then divide it into Parcels on the Marble, and to some of them put a little Flour of Brimstone in greater or lesser quantities; to others Flour of Brimstone and Dutch Pink mixed, so that you may have a variety of Colours. When you have thus made the different Shades you intend, then make them into Pastes with Ale-wort thickened by boiling with white Glover's Shreds of Leather, or a little Gum-dragon; and roll them into Crayons.

Seventh Green. Grind Rock-Indigo with Water, and put to it in several Parcels, as much Dutch Pink as you think fit, to make your Greens of various Shades; when these are well mixed, put to them some Ale-wort thickened by boiling, with which make them into Pastes; then roll them into Pastils.

The Reason why these Pastils are better than those which in common are bought at Shops, is because they are generally made too stiff with Gums, and so will hardly touch the Paper; all these will work freely, and express the several Colours you desire.

The Reason why you are to make five or six Shades of each Colour is, because we cannot mix any when we use them; whereas in Oil-painting, and Painting in Water-colours, we can make what Mixtures we please in an instant: And when we are about Painting or Drawing in Crayons, which happens to have a great Variety of Colours in it, we ought to have every sort of Colour that can be thought on.

These Colours should be kept in a Box partitioned, every sort by itself, *viz.*

The White.

Yellows. Lay the brightest Sorts in one, and the deeper Sorts in another, till you come to the Orange-colours.

Orange-colours. The lighter Sorts in one apartment, and the deeper in another.

Reds. The paler Sorts, or Flesh-colours, in one apartment, the brighter Reds in another, the stronger Reds in another, and the deepest Reds in another; every one with its proper Shades, till we come towards Purple.

Purples. The paler Sorts inclining to Red in one apartment; the next Sorts, more inclining to Blue, in another, with their Shades; and those which are next to Blue, with their Shades, in a Part by themselves.

Blues

Blues should follow the Purples; put the lightest in the first apartment, the next degree in another, a third into another, and the fourth to the last into others: But the Prussian Blue keep quite by itself, and its mixtures by themselves; it serves very well in this way to supply the Place of Ultramarine, and it is much cheaper. And besides, in this way of Crayon-drawing, the Preparation of Prussian-blue does very well answer the same End, though that Colour will not do in Water-colours, nor even last in Oil-colours, if it comes to be exposed to the Weather: for in either case it changes to a dirty Yellow-colour, but it is found that the Crayons hold by being embodied as is directed above.

Greens should be divided into three or four sorts, and with their Shades be laid in several apartments.

Browns should be likewise laid in three or four Parcels with their proper Shades, and be laid each in an apartment of one great Box, and the Painter should never be without Crayons of Charcoal in another case. With all these he will be completely furnished, and when he goes out to take any View he should have one of every sort divided after the foregoing manner to carry in his Pocket.

The Paper which should be used on this Occasion is rough Venice-paper, almost like our

D 3 whited

whited brown Paper, which the stiffer it is the better; and that sort of it which is called Cap-paper is by Experience found to be the best, because upon such the Colours most easily distribute themselves. By this means every one may take Figures in their proper Colours, as they naturally appear to the Eye, because he may match the Colours as they appear, with the Crayons he has got by him; and as the Crayons are dry they will not alter their Colour: but the wetted Colours will appear deeper when they are wet than when dry, which is apt to deceive the Eye of a Beginner.

*Instructions for the Use of CRAYONS.*

WHEN you use your Crayons, remember that you point them from the Bottom upwards, and that you do not make the Points too sharp, unless in the White-chalk, the Red-oker, and the Charcoal.

A good pretty Sort of Drawing may be made on Blue-paper with only Chalk and Charcoal; the strong Lights and the dark Shades make a fine Contrast, and a pleasant Appearance in a Drawing.

For the Principles of Drawing, and the Directions necessary for attaining that useful Art, together with some farther Instructions on the Doctrine

trine of Colours of all Sorts used in Painting, we would recommend to the Reader a careful Perusal of *The Art of Drawing and Painting in Water Colours*, already referred to.

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### C H A P. III.

#### *The Method of ETCHING.*

**E**TCHING is a manner of Engraving on Copper, wherein the Lines or Strokes, instead of being cut with a Tool or Graver, are eaten in with Aqua-fortis.

Etching has several Advantages over Graving, first, as being done with more Ease and Expedition; secondly, as requiring fewer Instruments; and thirdly, as representing curious kinds of Subjects better and more agreeably to Nature, as Landskips, Ruins, Grounds, and small, faint, loose, remote Objects, as Buildings, &c.

*Of the proper Instruments, Materials, and Method of preparing these Materials, used in ETCHING.*

**T**HE principal Instruments for Etching, are the Etching-needles, the Oil-stone, Brush-pencils, the Burnisher, the Scraper, the Compasses, the Ruler, the Stift, and the Frame and Trough: the Materials are the hard and soft Varnish, prepared Oil, and Aqua-fortis.

The Needles are to be chose of several Sizes, of a fine Grain, and such as will break without bending. These are to be fixed in round Sticks, of firm Wood, about six Inches in length, and of the thickness of a large Goose-quill: they are to stand out of the Sticks about a quarter of an Inch, or something better. Of these you should have twenty at least, which may be fixed in such Sticks as to have a Pencil at the other End.

The Use of the Oil-stone is for whetting the Needles, which, if you would have the Points round, must be whetted short upon the Stone, by turning them round; and if you would have them sloping, they are first to be blunted upon the Oil-stone, and then whetted sloping on one side only, till they come to a short and roundish Oval.

The Brush-pencil is to cleanse the Work, wipe off Dust, and to strike the Colours even over the Ground or Varnish, when laid upon the Plate.

The Burnisher is a well hardened Piece of Steel, somewhat roundish at the End, for smoothing and giving a Lustre to the Plate, &c.

The Scraper is one of the Instruments fitted for clearing the Plate of all deeper Scratches or Strokes which the Burnisher will not take away.

The

The chief Use of the Compasses is in measuring Distance, or striking Circles, or some Part or Portion of them, where you would have your Work to be exact.

The Ruler is used chiefly in drawing all the straight Hatches or Lines of the Design upon the Plate; or to mark out Distances upon straight Lines.

The Stift is used for drawing through all the outmost Lines or Circumferences of the Print, Pattern, or Drawing, which is etching after.

The Frame is an entire Board, about the Top and Sides whereof is fastened a Ledge about two Inches broad, to keep the Aqua-fortis from running off from the Sides, when it is poured on: the lower end of this Board is to be placed in the Trough, and to lean sloping against a Wall, or some other thing, in which are to be placed six several Pegs of Wood to rest the Plate upon.

The Trough is made of a fine firm Piece of Elm or Oak, set upon four Legs, the hollow whereof is to be four Inches wide, and of such a Length as may be fit for use. The hollow must be something deeper in the middle than elsewhere, that the Water running thither may fall through a Hole (made there for that purpose) into an earthen Pan well leaded. The inside of this

Board and Trough must be covered with a thick Oil-colour to hinder the Aqua-fortis from eating or rotting the Board.

The hard Varnish for etching is made as follows. Take Burgundy or Greek Pitch, ten Ounces; of Colophony or Resin, the same Quantity; of Nut-oil, eight Ounces; melt the Pitch or Resin in an earthen Pan over a slow Fire; then put in the Oil, and let them boil for the Space of half an Hour: after this set it on a slower Fire, and let it cool a little till it appear like a gluey Syrup: then cool it a little more; strain it, and when it is almost cold, put it into a glazed Pot for use. This will keep good for upwards of seven Years.

To make the soft Varnish for etching, take of Virgin-wax, six Ounces; Mastich in Drops, four Ounces; Asphaltum, two Ounces: grind the Mastich and Asphaltum, separately, very fine; and sift them through a very fine Hair-sieve: then melt the Wax in an earthen Pot, and strew in the Mastich and Asphaltum, stirring them upon the Fire, till they are well dissolved and mixed, which will be in about half an Hour: then let it cool a little, and pour it into a Bason of fair Water, but suffer not the Dregs to go in: afterwards having wetted your Hands, take it out of the Water, and make it up into Rolls before it is cold.

If

If it be for a red Ground, take Red-lead, grind it very well, and temper it with Varnish; if for a white Ground, take Resin, four Ounces; Wax, two Ounces; melt them together, adding Venetian Ceruss, finely ground, four Drams; and if for a black Ground, take Asphaltum, two Ounces; Bees-wax, one Ounce; melt them together, and while they are warm lay the Mixture thinly on with a Lawn-rag.

To make the prepared Oil, heat Olive-oil in an earthen Pan, and putting to it as much Sheep-suet as that being dropt upon a cold thing, the matter will be a little hardened and firm, let these boil together for the Space of an Hour, till they become of a reddish Colour, lest they should separate when they come to be used.

To make the Aqua-fortis: Take of distilled White-wine Vinegar, one Quart; of Sal-armoniack and Bay-salt, each four Ounces; of Verdegrease, almost three Ounces; put all these together into a pretty large earthen Vessel well glazed, and covering the Pot close, set it over a quick Fire, taking care that the mixture does not boil over; give it as speedily as you can two or three great walms, and no more; when it is ready to boil, uncover the Pot and stir it now and then with a Bit of Stick, taking care that it does not boil over: when it has boiled take it off,

and set it by to cool, keeping it still close covered, and when it is cold, put it into a Glass bottle with a Glass stopple.

If it proves too strong in Etching, it may be weakened with a glass or two of the same Vinegar you made it of.

*The Method of preparing the PLATE and using  
the VARNISH for Etching.*

**T A K E** a Copper-plate about the Size of the Work to be Etched; hammer it very even and smooth; then take a Pumice-stone, free from Gravel, and thereby rub it with a little Water; and afterwards with a few Drops of Olive-oil, rub it well with your Burnisher, and rub that with a Piece of Charcoal dipped in Water. Then with a Roller made of Black Felt, Castor, or Beaver-hat dipped in Olive-oil, rub it well for an Hour or more, till the Plate is glazed and sufficiently polished.

The Plate being polished, heat it over a Chafing-dish of Coals, and with a little Stick take some of the first Varnish, and put a Drop of it on the tip of your Finger, with which touch the Plate lightly and at equal Distances; laying on the Varnish equally, and heating the Plate again as it grows cold, preserving it carefully from gathering any Dust or Filth. Then, with the ball  
of

of your Thumb, daub it upon the Plate, still wiping your Hand over all, till you make it smooth and equal, in which case great care is to be taken that the Varnish is not too thick, nor your Hand sweaty.

This being done, take a great lighted Candle, that burns clear with a short snuff, and placing the Corner of the Plate against a Wall, and holding the varnished Side of the Plate downwards over the Candle as close as you can, not to touch the Varnish, guide the Flame all over the Plate, till it is all perfectly blacked, and preserve it from Dust and Filth till it is dry.

Hang the varnished Plate to dry over a charcoal Fire, with the varnished Side upwards, which will smoke: when the Smoke abates, take away the Plate, and with a pointed Stick scratch the near side of it, and if the Varnish comes off easily, hang it over the Fire again for a little while, till the Varnish will not easily rub off: then take it from off the Fire, and set it by to cool.

If the Varnish should be too hard, cast cold water on the backside of the Plate.

The method of using the soft Varnish is as follows: Having made the Plate ready as before, rub it well over with fine white Chalk scraped, and a fine Rag, not touching it with your Fingers.

gers. Then lay the Plate over a Chafing-dish, and having tied up some of the Varnish in a fine Rag, rub it up and down the Plate, so that as it melts, it be neither too thick nor too thin: then smooth it as well as you can all one way with a Duck's Feather; and afterwards crosswise, till it lies smooth and even. But care must be taken that the Plate be not too hot, for if it lies till the Ground smokes, the moisture will be dried up, which will occasion the Ground to break, or fly up, and spoil the Work.

Then having ready some Cerufs or White-lead, ground with Gum-water, so that it is of a convenient Thickness for spreading on the Copper, strike the Plate with it cross over twice or thrice, till it is smooth, with a large Pencil or small Brush made of a Squirrel's Tail, and after this set it by till it dries.

### *General Directions for ETCHING.*

THE Method of Etching is as follows: The Plate being covered over with a peculiar Ground or Varnish, as already directed, and that side blackened with the Smoke of a Candle, the Back of the Design or Draught is laid over the Varnish, being first rubbed with Red-chalk: then the Design being laid on is to be transferred upon the varnished Side of the Plate. This is done by tracing over all the Lines and Strokes of the

Draught with a Needle or Point, not very sharp, which, pressing the Paper close down to the Ground, causes the Wax to lay hold of the Red-chalk, and thus brings off with it the Marks of the several Lines, so that at length it shews a Copy of the whole Design in all its Correctness.

In the mean time, it is necessary to observe, that such Parts of the Plate as you do not work upon is to be covered with a Sheet of fine white Paper, and a Sheet of brown Paper over that; upon this you may rest your Hand to keep it from the Varnish. If you make use of a Ruler, lay some part of it upon the Paper, that it may not rub off the Varnish; and take an especial care that no Dust or Filth get in between the Paper and the Varnish, because that would hurt it.

The Draught or Design being thus chalked, the Etcher next proceeds to draw the several Lines and Contours with a pointed Tool through the Grounds upon the Copper. In doing this, he makes use of Points of various Sizes, and presses them on more strongly or lightly according as the several Parts of the Figures, &c. require more or less Strength or Boldness.

This being done, a Rim or Border of Wax is raised round the Circumference of the Plate, to keep in the Aqua-fortis, and prevent it from running

ing off at the Edges; and then it is poured on the Plate so prepared. The Ground or Varnish with which the Plate is covered defends it every where from the corrosive Quality of the Aqua-fortis, except in those Lines or Hatches cut thro' the Ground with the Points, which lying open, the water passes through them into the Copper, and eats into it the depth required, which being done it is poured off again.

It is to be observed, that the Aqua-fortis must not continue equally long, or be poured on equally over all the Parts of the Design; the remote Parts must first be eaten more slightly than those nearer to the View. For effecting this, a composition of Oil and Grease with which they cover all the Parts that are to be bitten no farther, is made use of; or else this Composition is at first laid on as a defensative, and taken off again when they find it proper. In a word, they are every now and then covering or uncovering one or another Part of the Design as occasion requires.

The Management of the Aqua-fortis is the principal Matter in the whole Art of Etching, and that on which the Effect of the whole chiefly depends. The Workman must be observant as to the Ground, that it does not fail or give way in any part to the Aqua-fortis; and if in any place it does, to stop up that with common Varnish.

nish. It must be also observed, that a fresh Dip of Aqua-fortis must never be given without first washing out the Plate in fair Water, and drying it at the Fire.

When the Aqua-fortis has performed its Part, the Ground must be taken off, and the Plate washed and dried; after which the Artist must examine it with his Graver in his Hand, to touch it up and heighten it where the Aqua-fortis, &c. has missed.

### *Particular Directions for ETCHING.*

IN making Lines or Hatches, as there must be some bigger and some less, some straight and some crooked, you must use several Sorts of Needles, bigger or less, as the Work requires. The large Lines are made by leaning hard on the Needle, the Point being short and thick; (but a round Point will not cut the Varnish clear) or by making divers Lines or Hatches very close to one another, and then passing over them again with a thicker Needle; or by making them with a pretty large Needle, and letting the Aqua-fortis be the longer thereon.

If your Lines or Hatches should be of an equal thickness from end to end, lean on the Needle with an equal force; leaning lightly where you would have the Lines or Strokes fine or small;  
and

and heavier where you would have them appear deep or large. If the Lines are too small, pass over them again with a short but round Point, of such a Bigness as you would have the Line of, leaning strongly where you would have it deep.

The manner of holding the Needle with oval Points, which is most proper for making large and deep Strokes, much resembles that of a Pen; only the flat Side whetted is usually held next the Thumb; yet it may be used with the Face of the Oval turned towards the Side of the little Finger.

If you would end with a fine Stroke, you should draw it with a fine Needle; and in using the oval Points, hold them as upright and straight in your Hand as you can, striking your Strokes firmly and freely, for that will add much to their beauty and clearness.

In etching Landskips, you must use slender Points for faint Strokes to those Places at the greatest Distance from View, as also those nearest the Light; and you must be careful, while at work, to brush off all the Dust worked off with the Needles.

It is necessary to observe that you ought to be so far master of the Art of Drawing as to be able to copy any Print or Painting exactly, and to draw

draw after good Heads of Plaister or Figures, according to your own Fancy, and to shadow every thing exactly according to Art: and therefore, when you imitate Plaister, be sure to take the true Out-lines or Circumferences; and taking notice how the Shadow falls, to do it very faint, as soft as the Design requires. Therefore it is convenient that you be able to hatch with the Pen exactly, after good Copies; and when you can do that, to draw after Plaister, and then to draw from the Life.

In order to take the Out-lines in any Drawing or Print upon the Ground of the Plate, you must scrape a little White-lead on the backside: then take a Feather, and rub it over every where alike, and shake off that which remains loose.

Having done this, lay the Print on the Plate, over that side where the Lead is, and fasten the four Corners of it to the Plate with a little soft wax: then take the Stift and draw upon the Print all the outmost Lines or Circumferences exactly. When you have done this, take off the Print from the Plate, and all the same Out-lines and Circumferences which you drew upon the Print with a Stift will exactly be found upon the Ground.

Then you must observe exactly how your Original or Pattern is shadowed, how close the Hatches are.

are joined, how they are laid, and which way the Light falls or comes in ; this must be made to fall one way, and if the Light falls sideways in the Print, you must hatch that side darkeſt which is fartheſt from the Light ; and ſo place the Lights altogether on one ſide, and not confuſedly, part on one ſide and part on another.

Take heed how cloſe all the Hatches join, how they incline, and which way they twiſt and wind : this follow as exactly as you can, but before you begin to hatch or ſhadow, you muſt not fail to draw all the Out-lines with a Needle upon the Ground as artificially as you can, and ſhadow it with your different Needles according to the Original.

In Landſkips, that Part next the Eye, as was already obſerved, is to be hatched darkeſt, and the reſt is to decline in its Shadows, by degrees, the farther it is off from view. The ſame Method is to be obſerved in etching a ſky, for that which is neareſt to the Eye muſt be ſhadowed darkeſt, but in general as ſoft and faint as poſſible, loſing itſelf gradually, as directed before ; and by how much nearer the Sky comes to the Ground, by ſo much the more looſe and faint muſt it be made to appear, and where they both meet as it were together, the Sky muſt be quite loſt.

In etching Letters, screw the Copper-plate (after it has been prepared for etching in the manner already directed) in a Hand-vice, then hold it over a Charcoal-fire till it be warm; rub a Piece of Virgin-wax all over the Plate, spreading it very even with a Feather, and then letting it cool. The Letters being written on Paper with ungummed Ink made with Vermilion, lay the written Side downwards upon the waxed Plate, and fasten the four Corners with a little soft Wax, placing the Writing so exactly that the Lines may run straight. Then rub the Backside of the Paper all over with a Dog's-tooth, taking care not to miss any part thereof, and taking the Paper off the Plate, you will find all the Letters written on the paper left exactly on the Wax. Then draw all the Letters through the Wax on the Plate with a Stift, and afterwards clean the Work from the loose Wax with a Linnen-rag or Pencil-brush; and lastly pouring on the Aqua-fortis, the Letters will be etched: All the former Operations being performed, wash the Plate with fair Water, and set it wet upon the Fire till the Mixture be well-melted; then wipe it very clean on both Sides with a Linnen-cloth till it is thoroughly clear of all the Mixture. In the next place take Willow-charcoal, and pulling off the Rind, put fair Water on the Plate, and rub it with the Charcoal, as if you were to polish it, and by this Operation you will get off the Varnish; only you must re-

member that the Coal is to be free of all Sorts of Knots and Roughness, and that no Sand or Filth fall on the Plate. After this, adding two third Parts of fair Water to one third Part of common Aqua-fortis, dip a Linen-rag in it, which by rubbing the Plate all over will restore it to its former beauty. However, it is necessary that the Plate be wiped after this with dry Linen-rags to take off the said Water, this is done by holding it a little before the Fire, putting on a little Olive-oil, and, with the Fur of an old Beaver-hat rolled up, rubbing the Plate all over before it is wiped with the dry Cloth.

Lastly, If any Places require to be touched with the Graver, as it frequently happens, especially where it is to be very deep or black, carefully correct them; and then the Plate is fit to be carried to the Rolling-press.

## C H A P. IV.

### *Of JAPAN and INDIAN VARNISHES.*

#### *Of Japanning of Metals.*

**I**N japanning of Metals it is to be observed, that Steel or Iron may be japanned or varnished with any Colours; also that Part of the Metal designed for japanning in Colours should not be polished, and those Parts which are to be polished ought to be done before the Painting;

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otherwise part of the Colour is liable to break off in the Polishing.

The manner of japanning metals is as follows : Take any Colour you think proper, and grinding it well with Water on a Stone, by means of a Muller, let it dry ; and grind it afterwards in a Mortar, sifting it, if there is any occasion : then instead of Oil, mix it with white Varnish, and lay it by for use.

The whites are Ceruss or Flesh-white.

The Yellows are Yellow-oker, English Pink, and Dutch Pink.

The Reds are Vermilion, Red-lead, and Lake.

The Blues are Bice and Indigo.

The Blacks are Lamp-black, and Ivory or Bone-black.

The Greens are Verdegrease ground, or Verditer and Dutch Pink ground together.

The Browns are Fuller's-earth and Spanish Brown.

And the Purples may be made between Red and Blue, till you perceive they are to your mind.

*The Manner of japanning Iron Snuff-Boxes, &c. so as to look like China gilt about the Edges, is as follows :*

TAKE White-lead ground with Water, and drying it, beat it again to fine Powder, and mix it with Size. Let this preparation be laid equally  
on

on the Top and Bottom of your Iron-plates or Snuff-boxes, and afterwards suffer them to dry well. Then, about the Rims or Edges of the Box, lay some Yellow-oker with Size, and over that some Gold-size; and when this is well dried, lay on the Gold-size mentioned in the Colour-box; and this being near dry, lay on the Gold-leaf, that it may stick the better. Remember to have a Cushion of woollen Cloth to cut your Gold-leaf upon, that the Pieces of Gold may be exactly of the Size and Shape you require.

Then taking your Leaf-gold on some Cotton, lay it on the Part done with Gold-size, and laying it smooth, let all dry: this being done, paint whatever Figures you think proper on the upper and under Side of your Box, &c. upon the white Ground principally with Blue-bice mixed with white Varnish, and shaded with Indigo; and when this is dry wash the white Part with white Varnish, and the gilded Part with the gold Varnish.

*Method of making White or Amber-Varnish, from  
a Manuscript of Mr. Boyle.*

MELT about two Drams of White-resin in a clean glazed Pipkin, putting to it, by little and little, an Ounce of very white Amber; beat it to a fine Powder, and stir it over a gentle Fire till it is dissolved; then when you find it growing stiff,  
pour

pour in now and then a little Oil of Turpentine, continuing to do so till the Amber is melted. In the mean time, be careful lest it set fire to the House, because the very Vapours of the Oil of Turpentine will take fire by heat alone; and if it should happen to take fire, your best way of extinguishing it is immediately to clap a flat Board or wet Blanket over the Pot, which by keeping the Air from it will either put it out, or suffocate it.

Therefore in making this Varnish you are cautioned to melt the Resin in a Glass of a cylindric Figure, on a Bed of hot Sand, after the Glass has been well annealed or warmed by Degrees in the Sand; and under this you are to keep a very gentle Fire.

Having made your Varnish, pour it into a coarse linnen Bag, and press it between two hot Boards of Oak or Iron, after which you may use it with any Colour, as well as to varnish them over when they are painted.

After varnishing your Snuff-Boxes, &c. with this white Varnish, you may put them into a declining Oven, to dry and harden the Varnish.

But to cover Gold, you must use the following hard Varnish, (taken also from a Manuscript of Mr. Boyle) which will bear the Muffle, and may serve to lay over Brasses or any other Metal, that  
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appears like Gold, as well as Gold itself, to keep it from turning black, as the Bath-metals and such like are apt to do, when exposed to the Air. It is to be made thus: Melt half an ounce of Colophony in a glazed Vessel: then strew in by degrees an Ounce of powdered Amber, stirring it all the time, and when this begins to harden or resist the Stick, put in a little Oil of Turpentine, which will immediately soften it; then sprinkle in an Ounce of powdered gum Copal, every now and then pouring in some Oil of Turpentine; and strain the Varnish as already directed. The things done with this Varnish must also be put in a declining Oven for three or four days successively; by which means it will resist even Fire.

*To japan Brass, in the manner used to gild Brass-buttons, so as to make them look like Gold.*

THIS may be used upon Leaf-gold, or upon what is called the German Leaf-gold: or upon Brass and Bath-metal, that is designed to imitate Gold, in the manner following.

Put a Pint of the Spirit of Wine into a retort Glass, and adding a quarter of an ounce of Gamboge, half an Ounce of Lake, and half an Ounce of Gum-mastic, set it in a sand Heat, or near the Fire, or put the Body of the Retort frequently in warm Water for six Days together, shaking it twice or thrice a Day; then set it over a Pan of  
warm

warm small-coal Dust, and having first well cleaned the Metal, do it over thinly with this Varnish, and it will appear of the colour of Gold, and will not rub off, after being well dried in a declining Oven.

This is a good Varnish to mix with any Colours that incline to Red, as the white Varnish is to mix with those that are pale, or with any other sort of Colours.

*Of japanning on Wood or Paper, with Directions for making several sorts of Japan Wares, either in Gold, Silver, or in Colours.*

THE people of Japan have a method of making Plates, Bowls, and other Vessels, of Brown-paper, and sometimes of fine Saw-dust, which are very light and strong, after they have been varnished.

The method of making them is as follows: Boil a Quantity of Slips or Pieces of Brown-paper in common Water, mashing it with a Stick, while boiling, till it turns almost to a Paste; then take it out of the water, and pound it in a Mortar, till it is reduced to Rags like those pounded in the Trough of a Paper-mill. That done, take Gum-arabic, of which and common Water make a strong Gum-water, a Quantity sufficient to cover the Paper-paste an Inch thick; put these toge-

ther in a large glazed Pipkin, and let them boil, stirring them well together, till the Paper-paste is impregnated with the Gum : then have a Mould ready to give the Paste the Form or Shape you design it.

This Mould is made as follows : Suppose, for example, you design to make a Vessel in the Form of a pewter or earthen Plate, procure a hard Piece of Wood turned on one side in the Form of the Plate, with a Hole or two made in the Middle quite through the Wood : then get another Piece of the like Wood, and much of the same Figure, and alike turned, but about the eighth Part of an Inch less than the former ; and this last may have some little Ornament carved or engraven on the Wood. Oil these Moulds very well on the Sides that are turned, and continue to oil them till they are well soaked, by which time they will be fit for use.

Then take that mould which has the Hole in it, and having oiled it again, set it even upon a strong Table, and spread over it some of your Paste, as equally as possible, so as to be every where a Quarter of an Inch thick : then oil the other upper Mould very well, and set it as exact as possible upon your Paste, and pressing it down very hard, and setting a great weight on it, let it stand for twenty-four Hours.

It may be observed, that the Hole at the Bottom of the Mould is for the Water to pass thro' that is pressed or squeezed out of the Paste, and that the oiling the Mould is to prevent the gummed Paste from sticking to the Wood.

When the Paste is dry, it will be as hard as a Board, and fit to lay a Ground upon, which Ground should be made with strong Size and Lamp-black: then let it stand to dry leisurely, and when it is thoroughly dry, mix Ivory-black finely ground with the following Varnish.

*To make the strong Japan-varnish.*

TAKE an Ounce of Colophony, and having melted it in a glazed Pipkin, take three Ounces of Amber reduced to a fine Powder; this sprinkle, by little and little, into the Pipkin, adding now and then some Spirit of Turpentine: when this is melted, throw in three Ounces of Sarcocolla finely powdered, stirring it all the while, and putting in frequently more Spirit of Turpentine, till all is melted: then pour it through a coarse Hair-bag placed between two hot Boards, and press it gently till the clear Part is received into a warm glazed Vessel. Mix ground Ivory-black with this Varnish; and having first warmed the Paper-plate, &c. paint it in a warm Room, before the Fire, as equally as you can, and set it in a gentle Oven; the next Day put it into a hotter

one; and the third Day into one still hotter; and let it stand there till the Oven is quite cold; and then it will be fit for any use, either for containing Liquors cold or hot; this Varnish will never change, nor the Vessel break, without some great violence.

It is thought probable, that if the Moulds were cast of any hard Metal, they might do better than those turned in Wood.

*To make these Vessels of a Gold-colour.*

PREPARE your Plates, Bowls, or any other Vessel, according to the Method before directed; or it may be done in the manner following. Take fine Saw-dust, and having dried it well, pour on it some Turpentine mixed with an equal quantity of Resin, and half as much Bees-wax: mix them well, and put them to your dry Saw-dust, stirring all together till the Mixture becomes as thick as a Paste. Then take it off the Fire, and having warmed the Moulds, spread some of your mixture on that which has the Hole in the middle as equally as can be done, and press down the upper Mould upon it: then set it by, and letting it stand till it is cold, it will be fit for Painting.

When the Turpentine is melted, you may put in some Sarcocolla finely powdered, about the

Quantity of half the Turpentine, stirring it well; and this will harden it. The Composition ought to be made in the open Air, because being apt to take fire, it may endanger the House.

But whatever of the Mixtures is used, in order to make them look like Gold, let them be done over with Size, and when that begins to stick a little to the Fingers, lay on Leaf-gold either pure or of the German sort: but it is to be observed, that the German Leaf-gold is apt to turn Green, as most of the Preparations of Brass will do, such as those of Bath-metal and others of the like kind, which look like Gold, when they are fresh polished or cleaned every Day, but being exposed to the Air, will soon change to an ugly Colour: therefore Gold is rather to be chosen, as it is not only a finer Colour, but by reason it never changes. And though the Leaf-gold is tender, and may be subject to run off, yet the Varnish with which it is covered will keep it bright and entire.

After the Gold has been laid on, and the Gold-size is dry, and the loose flying Pieces brushed off, then lay on the following Varnish to brighten the Gold, and preserve it from rubbing.

*Varnish for Gold, or such leaf of other Metals as imitates Gold.*

MELT some Colophony: then put in two Ounces of Amber well pulverized, with some

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Turpen-

Turpentine, as the Amber thickens, stirring it well: then add an Ounce of Gum-elemi well powdered, and some more Spirit of Turpentine; still keeping the Liquor stirring, till it is all well mixed: but take care to use as little Spirit of Turpentine as you can, because the thicker the Varnish is, the harder will it be.

Let this Operation be performed over a Sand-heat in an open Glass, and strain it as directed for the former Varnish.

Use this Varnish alone, first warming your Vessels made of the Paper-paste, and lay it on with a Painting-brush before the Fire; and afterwards harden it by degrees at three several times in Ovens; the first being of a slow Heat, the next a warmer Oven, and the third a very hot one: and these Vessels will look like polished Gold.

You must observe, that for those Vessels which are made with Saw-dust and the Gums, you may use a Varnish made of the same Ingredients as above, excepting only the Gum-elemi; and this will dry in the Sun, or in a very gentle warmth.

*To make these paper, &c. Vessels of a Red-colour with gilded Figures on them.*

THE Vessels being prepared as before directed, with brown Paper-paste, after they are dried,

Uc. as directed for the first, mix some Vermilion with the Varnish first directed, and use it warm; then stove it, or harden it by degrees in an Oven, and it will be extremely bright; or else lay on the first Ground with Size and Vermilion, and with Gum-arabic and Water stick on in proper Places some Figures cut out of Prints, as little Sprigs of Flowers, or such like; and when they are dry, do them over with Gold-size, and let them remain till it is a little sticking to the touch. Then lay on the Gold, and let that be well closed to the Gold-size, and dried; then if you have a mind to shade any part of the Flower, trace over the shady Parts on the Leaf-gold with a fine Camel's Hair-pencil and some Ox-gall, and then paint upon that with deep Dutch Pink; and when that is dry, use the Varnish in a warm Place, (*i. e.* that Varnish directed for the covering of Gold) and when you have done, set it to harden by degrees in an Oven. This Varnish will secure the Leaf-gold, or German metal from changing, by keeping the Air from it.

*The Method of SILVERING these japan Vessels.*

AFTER the Vessels have been made, and are thoroughly dried, do them over with Size, and with ground Chalk or Whiting; let them stand by till they are very dry, and then paint them over again with the brightest Gold-size you can

can get, (for there is a great deal of difference in the Colour of it, some of it is almost white, and other yellow; the latter is proper for Gold, and the former for Silver.) When this Size is almost dry, lay on the Leaf-silver, and close it well to the Size, brushing off the loose Parts, when it is dry, with some Cotton.

When you lay on your Leaf-silver or Gold, keep it free from the Air, for the least Motion of the Air will wrinkle the Leaves so as they will not lie smooth: then use the following Varnish to cover the Silver.

*To make the Varnish to cover the Silver.*

MELT some fine Turpentine in a well-glazed Pipkin: then take an Ounce and a half of white Amber well pulverized; put it by degrees into the Turpentine, stirring it well till the Amber is all dissolved: then put in half an Ounce of Sarcocolla powdered, and half an Ounce of Gum-elemi well levigated, pouring in at times more of the Turpentine-spirit till all is dissolved. Let it be done over a gentle Fire, and keep stirring the Mixture continually while it is on the Fire.

This Varnish will be as white and strong as the former, and being used warm, is as strong as that laid on the Gold; and when it is afterwards hardened by degrees in an Oven, in the manner  
of

of the Gold-varnish, the Vessel will look like polished Silver.

*Varnish in japanning of Wood, to mix with several Colours.*

TO make a Varnish to mix with Colours, dissolve Spirit of Turpentine over the Fire, in a little gum Tacamahaca till it is a little thickened: use this with any Colour that has been well ground with Water, and afterwards pulverized: your Work being done, varnish over your Piece with that directed to colour Silver.

*DIRECTIONS for imitating China or Porcelain Ware on Tea-Tables, &c. upon Gold or Silver Grounds.*

PREPARE your Tea-Tables, &c. as already directed: then marking out your designs upon them, paste on some Paper in proper Places, and when your Paper is dry, draw your Designs upon them, and paint them with Water-colour: then with a Brush lay gold or silver Size on the other Part, and when that is almost dry, lay on some Gold or Silver-leaf; and all being dry, varnish over with the white varnish, if it be a silver Ground; or with the strongest Varnish, if it be a gold one; except only the Ovals or Circles, which must be done with the white Varnish; being so transparent that all the Paintings will appear through it. If you lay on a gold Ground,

or any other Colour darker than that, then let your Paintings be blue and white; or if it be silver or light Ground, then use the most fiery Colours in your Paintings.

*The Method of GLAZING PRINTS with white Varnish, so as to bear Water and a Polish.*

THE best Method for this purpose is first to paste your Print on a Board, or a Piece of Shock-cloth strained on a Frame: to do this well, prepare some stiff Starch, and with a Sponge dipped in Water, or thin Starch, wet the Back of your Print; and if you design to lay it on a Board, dip a large Brush in the thick Starch, and brush it over the Board as even as possible; and let it dry: then a second time repeat the same Operation, and continue it till the Veins or Grain of the Wood are quite filled. In the last Operation, when the Starch is just laid on, lay your wet Print upon it as even as possible: press it close every where till it lies smooth, and so let it dry. In this operation let your hands be clean, to prevent soiling the Print, and in about twenty four Hours it will be dry enough to varnish over with the following one.

Take Isinglass four Ounces, and pulling it into small Pieces, boil it in a Quart of Brandy, or some other strong Spirit, in a glazed Pipkin; and when, by taking out a little, you find it will  
make

make a strong Glue, by being a little exposed to the Air, it will answer the Purpose. Having made this Glue as strong as you can, while it is hot, wash over the Print with it, by means of a Brush, as quick as possible, and let that stand for a Day or so: wash it over again in the same manner, and let it dry well: afterwards brush it over at such a distance from the Fire that it may not be too hot, otherwise it will blister: do this also two or three times over, then set it up for a Day or two, and brush it over again with the Varnish three or four times, and let it stand a Day or two. Afterwards varnish it a third time, and in three or four Days polish it with a soft Linnen-cloth, and some fine Tripoli-oil, rubbing it very gently till it remains as smooth as possible; and cleaning it with Flour and Oil, it will then appear as bright as Crystal; and if it should at any time be soiled by Flies or the like, you may wash it with a Sponge and Water, which will clean it.

The white Varnish is made as follows. Take of the clearest and whitest Sort of gum Sandarach one Pound, gum Mastich one Ounce, gum Sarcocolla one Ounce and a half, Venice Turpentine three Ounces, Benzoin half an Ounce, white Refin half an Ounce, and Gum-animæ an Ounce and a half: then mix and dissolve these different Ingredients in the following manner. Put the Sarcocolla and Refin into a little more Spirits than

than will cover them, to dissolve therein: then put the Gum-animæ, Benzoin, and Venice Turpentine into a Glass or glazed Vessel, and pour on as much Spirits as will serve to dissolve them; and in like manner dispose of the Gum-mastic and Sandarach in a separate glazed Vessel, and in another of the same sort put the Gum-elemi, with Spirits sufficient to dissolve it.

In this Process let it be observed, that the gums Animæ, Sarcocolla, and Benzoin, must be pulverized, while the Resin need only be a little broken.

While these things are dissolving for three or four Days, shake the Bottles twice or thrice a Day, after which put all the Mixtures together in a glazed Vessel, stirring them well; and then strain the Liquor and Gum gently, beginning with the latter, through a Linnen cloth, which will prevent any filth getting into the Varnish. Afterwards put it into a bottle, and letting it stand a Week before you use it, pour off as much of the clear Part only as you may want for present use.

If you put your print upon Shock-cloth well strained in a Frame, brush over the Cloth with strong Paste made with Flour and Water, and immediately brush over the Back of your Print with well prepared Starch: then brushing the  
Cloth

Cloth over again with the same Starch, lay on your Print as smoothly and equally as possible. Let them remain thus in a dry, warm Place for a Day or two, and then varnish your Print with the Glue made of Isinglass, as already directed, and then with the white Varnish.

With this Varnish you may mix up any Colour that has been ground dry upon a Marble, and paint with it upon any Figure you have drawn, or upon any print you have pasted upon your Work: but the varnished Colours should be chiefly put upon the shady Parts.

A Varnish of Seed-lacca is made as follows. Put a Quart of strong Spirits into six Ounces of Seed-lacca into a large glass Vessel, and shaking it often let the Mixture stand for two Days: then pass the Liquor through a Flannel-bag or the like, and squeezing the Gums every now and then, till all is strained, and nothing but the dry Gum remains, put it into Bottles, keeping them close stopped till you perceive all the thick Parts settle to the Bottom, which will be in three or four Days: then pour off the clear Liquor into another Bottle, and it will be fit for use.

*Directions for colouring of Draughts, or Prints of Birds, Flowers, &c. in japanning.*

IF the Prints or Drawings of Flowers be in black and white, and the Center of the Flower be

be rising, then touch the Edges of the Lights was a thin Tincture of Gamboge, and lay on some Dutch Pink or Gall-stone over the Shades, so as to run into the Lights but a very little. This is to be done by reason that the Thrums in the middle of Flowers are generally yellow, but if they are of any other Colour, as blue, in proportion as they are lighter or darker, the Verges of the lighter ones are to be touched with a little ultramarine Blue, and over the Shades either some Saunders Blue to run a little into the Ultramarine, or else Indigo; and some of the white of the Print being left void of Colour, will then give Life and Spirit to the Colours so disposed.

All the Flowers should be tenderly touched in the light Parts, just to give a little glare to the light Parts of the Colour you would give to the Flower-leaves: and if you paint from a natural Flower, you will presently see that you must lay on the most shady Part such a colour as will force the rest to appear forward: however, you are not to daub over the Shades with too heavy a Colour: let it rather be such if possible as may be transparent, and mix that into the light Colour that was laid on before. The Pencil, upon this occasion, must be used lightly, with very little Gum-water in it, and before the Colours are quite dry.

In painting the Leaves of Plants and Herbs, regard must be had to the Colours of the Greens, that sometimes being the chief distinguishing Character. Of Greens, Verdegrease is the lightest, therefore that Colour should be touched into the light Parts of the Leaf, from the Place where the lightest Parts of the Shades end : and then on the shady Parts lay some Sap-green, so as to unite with the Verdegrease green ; and if the natural Leaf be of a darkish Colour, touch the lighter Sides of the Leaves with a little Verdegrease-green and Dutch yellow Pink mixed together, or with a Tincture of French Berries, but so as to let the Verdegrease shine more than the Pink.

The leaving the Lights, in colouring a Print, has two Advantages ; *viz.* If the Lights be left on this occasion, the whiteness of the Paper serves instead of using white Paint, which is a heavy Colour, and would rather confound those that have been prescribed to be laid on, than do them any service ; but the Colours before directed, when there is no white laid on, will shine agreeably into the white of the Paper.

*General Observations in regard to VARNISHING.*

IN varnishing Wood, let it be very smooth, close grained, free from grease, and rubbed with Ruffles.

Lay on your Colours as smooth as possible, and if the Varnish has any Blisters in it, take them off by a Polish with Rushes.

In laying on the Varnish keep your Work warm, but not too hot.

Begin in the middle, and stroke the Brush to the outside; then to another extreme Part, and so on, till all is covered: for the Brush, was you to begin at the Edges, would leave Blots there, and make the work unequal.

In fine Works, use the finest Tripoli for polishing; do not finish your polishing at one time, but after the first polishing, let it dry two or three Days, and polish again for the last time.

In the first polishing you may use a good deal of Tripoli, but in the last a very small quantity will serve the purpose. Wash off the Tripoli with a Sponge and Water; dry your Varnish with a dry Linnen-rag, and clean your Work with Oil, Whiting, and Lamp-black.

*Directions for taking off any Figure from China or Japan-ware, without any previous Knowledge in Drawing.*

LAY a Piece of oiled Paper over the Figure you would copy, so as to hold the Piece steady, till you can trace out the Lines of the Figures:  
then

then lay the oiled Paper on another Paper blacked on one side, and the blacked Side of that one on a clean Paper: this done, trace the Lines with a Pen, or blunted Point of a Needle, till the Lines are all impressed on the white Paper, and draw them over with a Black-lead Pencil; and mark the Shades where they separate from the light Parts of the Colours, in the manner you see them painted on your Pattern. After this cut out your Figures close to the Out-lines, and fix them upon your ground of Whiting and Size, or of Size with ground Chalk, thick gum Arabic and Water; and when they are quite dry, paint them, the lighter Parts in Water-colours, and the shady Parts with Varnish mixed with the darker Colours.

When these are dry, wash all over with the white Varnish before the Fire, but not so hot as to make the Varnish rise in Blisters. When the Varnish is dry, lacker it again with the same Varnish, and repeat it a third time: then scrape some Tripoli very fine, and with a soft rag dipt in Water, take up a little of the Tripoli at a time, and polish it by gentle rubbing till it is smooth: then wash off the Tripoli with a soft Sponge and Water; after which, with a fine dry Cloth, wipe off the Tripoli, and when that is dry clean it with Whiting and Oil, if it is a white Varnish; or with Oil and Lamp-black, where the Varnish is black.

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But the common way of doing this is to cut out Prints, and then to paste them on such Parts as is thought proper, and afterwards to colour them with Water-colours, and varnish them with white Varnish. This is an easy Method of Painting, on account that the Shades of the Print, when a transparent Colour is laid on, will give the Light and Shade to your purpose, without using a dark and light Colour.

*A Method, from Mr. Boyle, of casting Amber in any Figure whatever, with Flies or any small Animals in it, in imitation of those valuable Pieces of Amber sold at a high Price.*

MELT some Turpentine in a Glass with a strong Sand-heat where the Fire may be raised at discretion. Then, having some levigated Amber of the finest sort, either white or yellow, sprinkle it into the melted Turpentine, stirring it all the time with a Piece of Fir-wood, till you find no resistance: afterwards, if you perceive the melting Mixture to resist the Stick, drop in by degrees a little Venice-Turpentine, and keep it continually stirring, till all the powdered Amber is dissolved, and is thick enough to pour into Moulds: then, when it turns cold, you will have whatever Figure you propose remaining as hard as the Amber itself, with all the same Qualities that Amber commonly has.















